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INTRODUCTION

Technology, new uses of farm products, agricultural credit, and natural resource use are current issues affecting the agricultural and food sector. Even though these issues are usually dealt with in separate policy paths, they are highly interrelated in the search for future public policies to serve both farming and the general economy. Thus, it is timely for them to be the focus of five selected commentaries in this issue of Policy Research Notes.

Kathryn Lipton identifies the up-to-date interests of various Congressional leaders for strengthening agricultural research as represented in their proposed bills for promoting new uses for farm products. Carl Zulauf and Norman Rask follow the impacts of specific provisions of the current 1985 Food Security Act for stimulating not only new uses of farm products but also alternative products in the search for higher economic opportunity for farm resource use.

In deciding policy issues about new agricultural technology, policymakers are often confounded by the lack of information on the critical consequences of technological innovations. McClelland and Kuchler examine the merits of using 'ex ante' economic analysis to make just such assessments.

Models have been developed to calculate the static gains to a more liberalized trading environment. However, these analyses have ignored potential welfare gains from reducing environmental degradation. In their paper, Stephen Haley and John Sutton look at some of the complimentary perspectives of resource and trade economists.

Farm financial distress and crises facing agricultural credit institutions have continued to confront policymakers in recent sessions of Congress. Del Banner systematically presents the detailed provisions and some likely consequences of the recently adopted Agricultural Credit Act of 1987 designed to stabilize the national Farm Credit System.

Note: Kathryn Lipton and Harry Baumes of the Agricultural Policy Branch of ATAD are picking up the responsibilities within the ERS to carry on the fine work of Tom Fulton and Tom Lederer as they helped edit recent issues of Policy Research Notes.

Policy Research Notes is a cooperative effort of the Illinois Agricultural Experiment Station and USDA-ERS. Notes are prepared by R.G.F. Spitze, Department of Agricultural Economics, 1301 West Gregory Drive, University of Illinois, Urbana, Illinois 61801, and Kathryn Lipton and Harry Baumes, U.S. Agricultural Policy Branch, ATAD, ERS, USDA, 1301 New York Avenue., NW, Washington, D.C. 20005-4788.

ANNOUNCEMENTS

Compiled by R. G. F. Spitze

Program Details Being Set for 1988 NPPEC Conference

On September 12-15, 1988, the 38th Annual National Public Policy Education Conference will be held at the Clarion Hotel, Cincinnati, Ohio. Topics for this year include: 1) Policy Choices for Revitalizing Rural America; Priority Issues for the New Farm Bill; 3) Opportunities for Joint Public Policy Education Programs; 4) Emerging Issues in Agricultural and Food Policy; 5) Emerging Resource Issues; 6) Policy Implications for Sustainable Agriculture; and 7) International Agricultural Relations.

Inquire about this conference from Lavaughan Johnson, NPPEC Chair, Cooperative Extension Service, Extension Hall, Auburn University, AL 36849 or Walter J. Armbruster, Farm Foundation, 1211 W. 22nd St. 216, Oak Brook, IL 60521-2197.

Trade and Southern Agriculture Topic of Conference

A Regional Trade Conference on the theme, "Southern Agriculture, International Trade and You," was held June 14-15, 1988 at Williamsburg, Virginia. The workshop was designed to acquaint production specialists, county extension agents, and agricultural economists with critical international issues and problems uniquely affecting Southern agriculture. Sponsors were the Southern Extension International Trade Task Force, Southern Extension Farm Management, Marketing, and Public Affairs Committees, Consortium for International Cooperation in Higher Education, Southern Rural Development Center, and Farm Foundation.

Inquire about this conference, and possible availability of proceedings, from C. M. Farmer, chair, Southern Extension Public Affairs Committee, Department of Agricultural Economics and Rural Sociology, University of Tennessee, P. O. Box 1071, Knoxville, TN 37901-1071.

"Hunger in the Midst of Plenty" Topic of Food Conference

The 1988 World Food Conference was held June 5-9, 1988, Des Moines, Iowa. Bringing together world leaders from ministries of Agriculture, Economics and Finance, producer groups, trade negotiators, agricultural suppliers, and marketing firms, consumer groups, private assistance organizations, government, and academia, it was designed to examine background issue papers and consider innovative policy options. It was hosted by Iowa State University, the Iowa Governor, and Iowa Congressional Delegation.

Inquire about this unique undertaking and request information about two books to be published from the conference by Iowa State University Press, from Susan Sanders, Conference Manager, Office of the Governor, State Capitol, Des Moines, Iowa 50319.

Policy Workshops Finalized for AAEA Meetings

The North Central Policy Research Committee NCR-151 (with interregional membership) has finalized the program for its pre-AAEA Policy Workshop, which is being

held in conjunction with another pre-AAEA Policy Modeling Workshop. Policy workers are urged to attend both workshops in succession, and may register for one or both as a part of the regular AAEA registration, already received.

Focusing on "Understanding the Food and Agricultural Policies of Industrialized Countries", the Policy Workshop will feature professionals from primary foreign agricultural trading nations, including Petit of France, Warley of Canada, Brandao of Brazil, and Hayami and Homma of Japan. A panel of economists will also provide an update on the policy implications of the GATT negotiations. Ample time will be provided for discussion by all registrants.

Focusing on "Value of Large-Scale Models for Policy", the modeling workshop will feature a presentation of seven national and international models, followed by a panel using each of the models to analyze three specified policy options. Again, discussion will be encouraged.

Inquire about the Policy Workshop from Marshall Martin, Purdue University (317/494-4268), and about the Modeling Workshop from Bob Taylor, Auburn University (205/826-4800).

The NCR-151 Policy Research Committee is also planning two more future workshops, one in late 1988 and the other in 1989 focusing on the 1990 Agricultural and Food Policy Development. Probably in December, 1988, the first policy workshop will feature, "Capacity and Adjustment Problems in American Agriculture." Its objectives are: 1) review the current capacity of the agricultural plant and prospective demand; 2) review the methodology for estimating "surplus capacity"; 3) study the adjustment problems and prospects in various regions of the country; and 4) examine how policy impacts agriculture's capacity and what those policy options are affecting resource adjustments.

Inquire about this workshop from Milt Hallberg, Pennsylvania State University (814/865-0497).

For additional information about the activities of NCR-151, contact Bob Spitze, University of Illinois (217/333-1820).

Regional Marketing Research Committee to Hold Symposium

The Regional Research Committee on Commodity Promotion Programs (NEC-63) will hold a Research Symposium on February 22-23, 1989, in Orlando, Florida. The theme will be "Measuring Returns to Commodity Promotion".

Inquire about this symposium from Henry Kinnucan, 213 Comer Hall, Auburn University, Auburn, AL 36849-4201.

Encyclopedia of Country Agricultural Policies Developed

This ambitious scholarly effort was launched by the Agriculture and Trade Division of USDA/ERS to identify and briefly characterize the types of governmental policy intervention used by the United States and most foreign governments. Intervention includes both domestic and external measures. The report, which is a product of this effort, reviews general economic policy goals and agricultural programs for more than 180 countries.

Inquire about this monumental effort from Gene A. Mathia, ATAD/ERS/USDA, Washington, D.C. 20005-4788 (202/786-1680), and request a copy

of the report, Global Review of Agricultural Policies, ERS Staff Report AGES 880304 from the Developing Countries Branch, ATAD/ERS/USDA, Washington, D.C. 20005-4788.

Low-Input Farming System Program Underway

Under Subtitle C of the 1985 Food Security Act, a new $3.9 million research and education program focusing on Low-Input Farming System was launched. Program guidelines have been established and project proposals are being developed, to include various universities research and extension proposals, as well as from other public agencies and from private organizations, along with input from farmers. It is being administered by CSRS under a cooperative agreement between that agency and Penn State University.

Inquire about this program and request "Guidelines for Preparing Regional Plans of Work for Low-Input Farming Systems Research and Education", from Patrick Madden, Program-Manager, USDA/CSRS, Washington, D.C. 20250-2200.

National Cattlemen's Association Launches Policy Program

The National Cattlemen's Association (NCA) has initiated various policymaking efforts likely to make their presence better known in future agricultural and food policy development. These include:

1) A description of the policymaking committees of NCA and the policy areas addressed by each. It covers the organization of the NCA and the beef industry, plus a schematic diagram and description of the policymaking process at NCA. Twenty-six "Fact Sheets" defining key policy issues and NCA action to influence the issues are included. Materials available with this effort are titled, "National Cattlemen's Association: Background Materials and Information", 1988.

2) Forty-one priority issues have been identified by 10 NCA policymaking standing committees as a part of the policy issue prioritization process for the NCA Board of Directors. It also includes analyses in terms of potential economic impact on the U.S. beef cattle industry. Materials available with this effort are titled, "Economic Analyses of Priority Issues Designated by NCA Standing Committees," April, 1988.

Inquire about these efforts and request the materials, as titled above, from Chuck Lambert, Research and Industry Information Department, National Cattlemen's Association, P. O. Box 3469, Englewood, CO 80155.

UK Food Policy Research Unit Issues Reports

The Food Research Unit at the University of Bradford, England, has released the following two reports dealing with future EC Food Policy:

(1) The EC is implementing a programme designed to reduce the "barriers" to trade between member states. It covers a wide range of food and agricultural issues from animal health through the use of food additives and official inspection of foods. The objective is to remove all internal barriers to trade by the end of 1992. A report on this programme is titled, Towards 1992: Completing the EC Internal Market for Food, ISBN 1-871099-03-X, April, 1988 (charge of 25 pounds).

(2) The adoption of nutrition labels around the world appears to

follow a consistent pattern. A report reviewing these adoptions provides an authoritative reference document under the title, Nutrition Labelling: An International Review, ISBN, 1-85143-036-9, October, 1987 (charge of 25 pounds).

Inquire about these efforts from S. Fallows, Food Policy Research Unit, University of Bradford, Bradford, Yorkshire, England, and order copies of the two reports above by title and designation from Horton Publishing Limited, 6 Southbrook Terrace, Bradford, Yorkshire, England.

POLICY RESEARCH NEWS NOTES

Compiled by R. G. F. Spitze

Competitiveness of U.S. and Australian Agriculture

This research effort involves a professional exchange between Brian Johnston, of the Australian Bureau of Agricultural and Resource Economics (ABARE), currently with ERS/USDA, and Jerry Sharples, of ERS, currently in Australia. It focuses on the long-run competitiveness of U. S. and Australian agriculture in the world market. Emphasis will be given to factors shaping long-run supply including the impacts of policy.

Inquire about this cooperative effort from Brian Johnston or Jerry Sharples, ERS/USDA, 1301 New York Ave. NW, Room 624, Washington, D.C. 20005-4788.

Third Annual Review of National Policy Center Released

This review by the National Center for Food and Agricultural Policy Research examines the new setting in which U.S. agriculture finds itself. It provides an assessment of how these forces will operate in the coming decades, evaluates their implications for U.S. agricultural policy, and suggests an agenda for future policy.

Inquire about this effort from Ann Tutwiler, Resources for the Future, 1616 P Street NW, Washington, D.C. 20036, and order a copy (charge of $20 plus $3 postage and handling, prepaid to Resources for the Future) of the 1987 Annual Policy Review: U.S. Agriculture in a Global Setting; An Agenda for the Future, from Marietta Schirf, Publications Office, Resources for the Future, 1616 P Street NW, Washington, D.C. 20036.

U. S. Farm Policies' Impact on World Trade

This study focuses on the 1985 Food Security Act. It analyzes its impact and effects on world agricultural trade. A (119 p.) report is available in French or an executive summary is available in English.

Inquire about this research from Guy Debailleul, 4409 Department d economie rurale, Pavillon Paul-Comtois Universite Laval, Quebec Canada G1K 7PA, and request a related paper, "Evolution de la Politique Agricole Americaine et Consiquence sur les Echanges Mondiaux", from Jeanne Dubuc, 4426 Service Documentation, Department d economie rurale, Pavillon Paul-Comtois, University Laval, Quebec Canada G1K 7P4.

Causes of Weak Demand for U. S. Farm Exports in the Mid-1980s

In this research, the following hypotheses about declining exports are considered: 1) booming world agricultural production; 2) slowing world population and real income growth; 3) EC agricultural policies; 4) the strength of the dollar; 5) the CCC loan rate; and 6) the 1980 embargo of sales to the Soviets. All the hypotheses except 1 and 6 appear to have played a role in the 1980's export picture.

Inquire about this research from Bruce Gardner, Department of Agricultural and Resource Economics, University of Maryland, College

Park, MD 20742, and request a copy of a related publication, The United States in the World Economy, M. Feldstein, ed., 1988 (will be a charge), from National Bureau of Economic Research, 1050 Massachusetts Ave., Cambridge MA 02138.

Soybean Exports to the European Community

This study involves a simulation of the EC enlargement based on a model differentiating products by origin. It indicates that the imposition of a tax on oilseed crushing in the EC would result in a significant decrease of U.S. soybean exports to the enlarged European Community. Exports to Spain and Portugal, however, would moderately increase because the impact of the tax is outweighed by the increase of corn tariffs in the new EC members.

Inquire about this research from Tassos Haniotis, 315 Connor Hall, Department of Agricultural Economics, University of Georgia, Athens, GA 30602, and request a copy of a related published article, "The Oilseed Tax and U.S. Soybean Exports to the Enlarged European Community," 1988, from Glenn C. W. Ames (a co-author with Haniotis) Department of Economics, University of Georgia, Athens, GA 30602.

California Agricultural Issues Center Releases Educational Materials

As this new center (see PRN, Issue 23, May, 1987, for announcement of establishment) focuses on its six priority issues facing California and western agriculture, it has developed the following several publications and media products.

(1) Three professional produced 40-minute tapes based on studies and follow-up symposia (available from UC/Ag. Issues Center, University Of California, Davis, CA 95616 with a charge of $50 each for 3/4 inch and $35 each for VHS or Beta 1/2 inch, prepaid to UC Regents):

(a) People, Income, and Lifestyles as Demand Factors;

(b) The Technology and Coordination of the Agricultural Delivery System;

(c) California's Competitiveness at Home and Abroad;

(2) The following reports available by report number from Publications, UC Division of Agricultural and Natural Resources, 6701 San Pablo Ave., Oakland, CA 94608:

(a) Trade Barriers and Other Factors Affecting Exports of California Specialty Crops, 1987, AIC-R3;

(b) Competitiveness at Home and Abroad, 1987, AIC-R4;

(c) Food Quality and Safety - Impacts on Marketability, 1987, AIC-R5;

(d) Demographic Shifts, Trends, and Other Factors Affecting Demand and New Product Development for California Agriculture, 1987 AIC-R1.

Inquire about these activities from John Woolcott, UC Ag. Issues Center, University of California, Davis, CA 95616.

World Potential for Fruits and Vegetables

Research is currently under way to explain the world shifts in demand for fruits and vegetables. This study is an attempt to quantify explanatory concepts such as "convenience" and "healthfulness".

These concepts will ultimately be used in a predictive model. Inquire about this research and request a related publication, Potential for Fruits and Vegetables in a Changing World Market, 1988, (charge $3.00) from A. Desmond O'Rourke, IMPACT Center, 104 Hulbert, Washington State University, Pullman, WA 99164.

U. S./Canadian Agricultural Trade

The National Center for Food and Agricultural Policy Research at Resources for the Future and the C.D. Howe Institute co-sponsored a July 1987 symposium on policy issues affecting agricultural trade between the United States and Canada. Special emphasis was given to bilateral and multilateral negotiations currently underway.

Inquire about this effort from Kristen Allen and order the proceedings, which she edited, U.S./Canadian Agricultural Trade Challenges: Developing Common Approaches, (charge $10 plus $1.50 prepaid postage) from Publications Office, Resources for the Future, 1616 P Street NW, Washington, D.C. 20036.

Nutrition Information Inadequacies in the UK

This recent major survey shows that much of the nutritional information available to UK consumers is misleading and often inaccurate. Consumers regard much of the available documents with suspicion and often favor sources whose accuracy is doubtful.

Inquire about this survey from S. Fallows, Food and Policy Research Unit, University of Bradford, Bradford, Yorkshire, England, and order a copy of a related publication, Answering Back: Public Views on Food and Health Information, January, 1988, ISBN 1-871099-00-5, (charge of 85 pounds) from Jacqueline McCluney, Horton Publishing Limited, 6 Southbrook Terrace, Bradford, Yorkshire, England.

Focus on Food-Borne Disease in UK

This inquiry focuses on yet another issue for food policy. Food-borne disease is of growing concern to food and health workers in the UK. Yet, it is generally disregarded by ordinary consumers who are chiefly concerned with the presence of food additives, and hence similarly inadequately treated in policy development.

Inquire about this effort from S. Fallows, Food Policy Research Unit, University of Bradford, Yorkshire, England, and order a copy of a related publication (price 25 pounds) Food-Borne Disease: The Hidden Hazard, ISBN-1-871099-01-3, April 1988, from J. V. Wheelock, Horton Publishing Ltd., 6 Southbrook Terrace, Bradford, Yorkshire, England.

Gauging Excess Capacity in U. S. Agriculture

This inquiry focuses on measurement of excess capacity in U.S. agriculture, which is defined as the difference between potential supply of farm output and commercial demand at prevailing prices. The study method enables analysts to assess and estimate excess capacity since 1940. Excess capacity has been increasing since 1979. The value of excess capacity in 1986 ($12.5 billion) exceeded the previous peak in the sixties, the result of greater agricultural output and a

sharp decline in agricultural exports after 1981.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788, and request a copy of a related publication, Excess Capacity in U.S. Agriculture: An Economic Approach to Measurement, Ag. Ec. Report 580, ERS/USDA, February, 1988, from Klaus Alt at the above address.

Looking Ahead at Costs of Farm Programs

This investigation concerns the Congressional Budget Office's outlook for farm price and income support program spending. Included are discussions of legislative, macroeconomic, administrative, and specific commodity supply and use assumptions underlying the baseline. Effects of a summer 1988 drought and alternative export paths on CCC outlays are examined as projections are made through 1993.

Inquire about this effort and request a copy of a related publication, "Farm Program Spending: The CCC Budget Outlook", May, 1988, from Roger Hitchner, Rm H2-495, Congressional Budget Office, Washington, D.C. 20515.

Conservation Reserve Survey

This study involves a survey of landowners participating in the Conservation Reserve Program in North Dakota. Cropping history, off farm employment, crop costs and yields, CRP entry costs, and further land-use intentions are some areas explored in the questionnaire mailed to some 3,000 landowners. Preliminary results are expected by mid-summer.

Inquire about this study from F. Larry Leistretz or Jay Leitch, Department of Agricultural Economics, North Dakota State University, Morill Hall, Fargo, ND 58105.

A Review of the Conservation Reserve Program to Date

This study concerns the Conservation Reserve Program (CRP), enacted December 1985, as part of the 1985 Food Security Act, and proposed as a tool for protecting the Nation's most highly erodible and fragile croplands. The CRP's primary goal is to establish a reserve of 40-45 million acres by 1990 to assist owners and operators of highly erodible cropland in conserving and protecting soil and water resources of their farms and ranches. This report summarizes the accomplishments of the CRP for fiscal years 1986 and 1987.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788, and request a copy of a related publication, The Conservation Reserve Program: Implementation and Accomplishments, 1986-87, Statistical Bulletin 763, ERS/USDA, from Michael R. Dicks, Felix Lilacuna, or Michael Linsenbigler at above address.

Policy Issues with the Agricultural Input Industries

This inquiry examines the agricultural input industries, during the 1970's expansion and the 1980's contraction, and factors in the farm sector that influenced these trends. When export markets contracted sharply in the 1980s as economic conditions in the U.S. farm sector reversed and overseas agricultural production strengthened, the pesticide, seed, fertilizer, and farm machinery

industries also responded by reducing capacity and production, as well as adjusting corporate structures and expanding use of international markets.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788, and request a copy of a related publication, Agricultural Input Industry Indicators in 1974-85, Agricultural Information Bulletin 534, ERS/USDA, form Stan Daberkow at above address.

Decoupling as a Future Policy Alternative

This effort involved a professional panel and congressional briefing which outlined the historical evolution of the decoupling concept from the 1985 Farm Bill debate to the current GATT negotiations, evaluated the impacts of decoupling, and considered the proposals for decoupling assistance programs. Contributions about the decoupling approach were also made by representatives of corporate and producer groups.

Inquiries about this effort from Barry Carr or Tim Phipps, NCFAP, Resources for the Future, 1616 P Street NW, Washington, D.C. 20036, and request a copy of a related publication, Decoupling Farm Programs, April, 1988, from Ann Ralosky at the above address.

Dairy Termination Program Participants

This study evaluates the characteristics of Southern dairy farmers whose bids were accepted in the Dairy Termination Program. The relationship between their reasons for participation on the one hand and the various dairy farm income and dairy farmer characteristics on the other are shown.

Inquire about this study from Dale M. Carley, Georgia Experiment Station, Griffen, GA 30223-1797 and request a copy of the related publication, An Evaluation of Characteristics of Participants in the Dairy Termination Program in Four Southern States, So. Coop. Series Bulletin 328, February, 1988, from the Georgia Agricultural Experiment Station, 125 Barrow Hall, University of Georgia, Athens, GA 30602.

A Policy Analysis of the Sugar Program

This study develops a political-economic, decision-making framework based on the economic surpluses of pressure groups, utilizing U.S. sugar import quotas and target prices as case studies. Explanatory variables in the econometric model include domestic producers and consumer surplus (including the high-fructose corn syrup market), quasi-rents of exporting countries, the Federal budget, and the partisan affiliation of the ultimate decision-makers. Results are linked to current and future political economic conditions in the industry.

Inquire about this research and request of a related paper, "The Political Economy of the United States Sugar Policies", December, 1987, from Rigoberto A. Lopez, Department of Agricultural Economics and Marketing, Rutgers University, New Brunswick, New Jersey 08903-0231.

Public Policies Related to Food Safety

This multidisciplinary effort was based on the premise that public

concern about nutrition and food safety will continue to escalate and give rise to increasingly complex public policy issues. It explored current and emerging public policy issues relating to food safety, quality, and human health. Contributions were made by food policy experts from government, academia, and the private sector.

Inquire about this effort from Ann Ralosky (address below) and order a copy of a relevant proceeding edited by Katherine Clancy, titled Consumer Demand in the Marketplace; Public Policies Related to Food Safety, Quality and Human Health (charge $10.00 plus $1.50 prepaid postage) from the Publications Office of Resources for the Future, 1616 P Street NW, Washington, D.C. 20036.

Dietary Problems and Food Consumption

This study being completed deals with methods of assessing dietary status from food consumption data. Methods of assessment relate directly to evaluating the extent of dietary problems in a population, and identifying particular groups at risk for inadequate diets.

Inquire about this study from Helen Jensen, CARD, Iowa State University, 578 Heady Hall, Ames, IA 50011.

Chemicals in the Food Chain

This study was carried out under the auspices of the University of California Agricultural Issues Center. The focus is on the sources, options, and public policy concerning chemicals in the human food chain.

Inquire about this study and about a copy of the proceedings (after August, 1988; charge $15) including a related paper, "Chemicals in the Human Food Chain: Sources, Options, and Public Policy", from Carole and Frank Nuckton, UC Agricultural Issues Center, University of California, Davis, CA 95616.

Impacts of Technologies

Both an aggregate econometric and a farm level response evaluation were used in this study to examine the differences of adopting cost-reducing and yield-enhancing technology. Technical change in agriculture has both possible results, i.e., allow more production at less cost. Thus, decisions on how to spend research and development funds (R & D) should not hinge on whether a technology reduces per acre costs or increases crop yields, but rather on which projects promise the greatest gains compared with their R & D costs.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York NW, Washington, D.C. 20005-4788, and request a copy of a related publication, Cost-Reducing and Output-Enhancing Technologies, Technical Bulletin 1740, ERS/USDA, March, 1988, from John Reilly at above address.

Implications of a Case of New Biotechnology

This study examines both the market complexities and the international political complexities that confront the introduction of bovine Somatotropin. The analysis finds that biotech producers are plagued by the same political economic factors that trouble farmers and other agribusinesses.

Inquire about this research from William P. Browne, Department of Political Science, Central Michigan University, Mt. Pleasant, MI 48859, and request a copy of a related

paper, "Political Choices, Social Values, and the Economics of Biotechnologies", by William P. Browne and Larry Hamon, Michigan State Staff Paper 88-33, April, 1988, from the Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824.

Biotechnological Advances in Perspective

This study looks into the idea of processing excess agricultural commodities into industrial products which has been around for over 50 years, with a lot of promise, but not much results compared to total agricultural production. Now it is hoped that advances in biotechnology will bring about agricultural-industrial processing. These advances may not be sufficient and success will likely require marketing orientation.

Inquire about this study and related published article, "Biotechnological Processing and Agricultural Prosperity," from Stephen L. Ott, Department of Agricultural Economics, Georgia Experiment Station, Griffen, GA 30223.

Policy Tradeoffs with Ethanol

This study looks at federally supported ethanol use as one alternative for meeting environmental, energy security, and agricultural objectives. Additional expansion of the industry depends on a continuation of current favorable conditions, including extension of the Federal gasoline tax exemption. Under current conditions, ethanol should be able to compete with other additives as an octane enhancer.

Inquire about this research and request a copy of the related report, Ethanol: Economic and Policy Tradeoffs, Agricultural Economics Report 585, ERS/USDA, April, 1988, from John Miranowski, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788.

Ethanol Reserve

This study, required by the Food Security Act of 1985, compares the cost of a Strategic Ethanol Reserve (SER) stocked by domestic ethanol with the cost of adding a like volume of petroleum to the Strategic Petroleum Reserve over the same time period. It further assesses the effects of an SER on agriculture, government agricultural programs, trade, consumer food costs, Highway Trust Fund revenues, employment, and other factors.

Inquire about this study and request a related report (single copies free) Feasibility of a Strategic Ethanol Reserve, March, 1988, from Nancy L. Smith, Office of Energy, U. S. Department of Agriculture, Room 144-E, Administration Building, Washington, D.C. 20250-2600.

Ethanol and the Corn Industry

This study was undertaken to take a comprehensive look at the issue of ethanol in supply, demand, and marketing distribution. Additional information relative to ethanol industry production costs and industry analyses were examined. Further, the oil industry was studied and compared to alternative fuels as an energy source for the future. Legislation and current initiatives were examined.

Inquire about this study and request a copy of the related publication, "Ethanol Issues Facing Illinois Corn Growers," February, 1988, from Scott G. Bidner, Illinois Marketing Board/Illinois Corn Growers

Association, 2415 E. Washington St., Bloomington, IL 61704-4409.

Farm Financial Stress Revisited

This current study underway is a follow-up longitudinal survey of North Dakota farmers. Questions regarding the current financial situation of the farm sector are included. Results of this study will be compared with surveys conducted in 1985 and 1986. Analysis and a preliminary report are expected by mid-summer.

Inquire about this work from F. Larry Leistritz, Department of Agricultural Economics, North Dakota State University, Fargo, ND 58105.

Farm Credit Pricing Under Alternative Scenarios

In an expenditure-constrained variable profit function framework, this study explores how imperfect lender information affects farm credit pricing for several market structures: competitive, monopolistic, and cooperative. Since lenders cannot determine any farmer's exact ability at the time of loan application, this asymmetric information can prevent fully efficient pricing by lenders. Under non-competitive conditions, either credit rationing or overexpansion due to imperfect information is observed.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788 and also request from him a copy of a related report, Optimal Farm Credit Pricing Under Asymmetric Information, by Hyunok Lee and Robert Chambers, Technical Bulletin 1739, ERS/USDA, February, 1988.

Recent Farm Credit System Policy

Analyses have been completed of the recent House and Senate bills proposed and passed in 1987 to assist the Farm Credit System to weather its financial crisis. The findings include projections of key financial variables for the FCS and the expected Federal cost of the two pieces of legislation.

Inquire about these analyses and request a copy of a related paper, "Assisting the Farm Credit System: An Analysis of Two Bills", December, 1987, from David Trechter, Room H2-495, Congressional Budget Office, Washington, D.C. 20520.

Policy Issues with Groundwater Contamination

Water quality policy research is critical because the drinking water of an estimated 50 million people in the United States comes from groundwater that is potentially contaminated from agricultural chemicals. Approximately 19 million of these people get their water from private wells, which are most vulnerable. Findings (based on synthesized data sources) suggest that potential contamination follow regional trends. Evidence indicates that pesticides and nitrates from fertilizers do not necessarily occur together in affected areas, implying a need to target strategies.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave NW, Washington, D.C. 20005-4788, and request a copy of a related publication, The Magnitude and Costs of Groundwater Contamination from Agricultural Chemicals, Ag. Ec. Report 576, ERS/USDA, October, 1987, from Elizabeth Nielson or Linda Lee at the above address.

Tradeoffs in Water Quality Policies

This research uses a field scale computer simulation model, CREAMS, to assess pollutant losses from agricultural land to water. Comprehensive soil and nutrient management on the farm can reduce water pollution. Matching the amount and timing of nutrient applications to the needs of crops is the most cost effective and efficient way to control nutrient contamination of surface and groundwater. Soil conservation groundwater practices reduce surface-water pollution, but can increase nitrate leaching through the soil.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788, and request a copy of a related publication, Managing Farm Nutrients: Tradeoffs for Surface and Groundwater Quality, Ag. Ec. Report 583, ERS/USDA, January, 1988, from Bradley Crowder or C. Edwin Young at above address.

Arizona's Groundwater Law Proposal

This study examines the Arizona Department of Water Resources proposal to sharply reduce the amount of groundwater which irrigators can pump in most of the irrigated areas of the state. The study looks at these new allotment effects on availability and profitability of water saving irrigation technologies.

Inquire about this study and request a copy of a related article "The Second Management Plan: What's Proposal for Agricultural Irrigation", Agricultural Policy Economic Issues, April, 1988, from Harry Ayer, Department of Agricultural Economics, University of Arizona, Tucson, Arizona 85700.

Another Look at Agricultural Effects of Tax Reform

This study examines the direct and indirect effects of tax reform on agriculture. Previous research has concentrated on the direct effects of a tax change on agricultural resources, but has largely ignored the indirect effects through other sectors of the economy which are also affected by tax reform. This effort initially considers the theory behind models which quantify the direct and indirect effects of taxes and then shows how a general equilibrium model is more appropriate for analyzing these effects on the agricultural sector.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New York Ave. NW, Washington, D.C. 20005-4788 and also request a copy of a related report, An Econometric Model of Direct and Indirect Effects of Tax Reform on Agriculture, by Roy Boyd, Technical Bulletin, 1743, ERS/USDA, February, 1988.

Implications of Tax Reform Act of 1986

This research focused on alternatives and impacts of the Tax Reform Act of 1986. It was found that it will probably cause investment in agricultural equipment to decline through 1991, mostly because of the repeal of the investment tax credit. Five tax reform proposals debated prior to the passage of the Act would have also led to decreased investment in long-lived equipment. The study combined the cost of capital associated with each proposal and a stochastic coefficients economic approach to forecast capital investment and rental rates.

Inquire about this research from Kenneth Baum, RTD/ERS/USDA, 1301 New

York Ave. NW, Washington, D.C. 20005-4788, and request a related publication, Economic Consequences of Tax Reform on Agricultural Investment, by Roger Conway, Don Dwist, James Hrubovcak, Michael LeBlanc, February, 1988, Technical Bulletin 1741, ERS/USDA, from any of these authors at the above address.

Congress and Agricultural Research: Promoting New Uses for Farm Products

by Kathryn L. Lipton*

For over 100 years, Federal policymakers have passed legislation directing the agricultural research community to help solve the problems of the U.S. farm sector. From early efforts to expand productivity to more recent research on resource conservation and rural development, this legislation has provided a broad mandate for public agricultural research.

Today, Congress is calling upon agricultural researchers to help an ailing farm sector plagued with chronic surpluses. Recognizing that new sources of demand for farm products may help U.S. agriculture overcome the effects of stagnant domestic demand and increased foreign competition, members of Congress recently introduced a number of bills to fund development of new industrial and commercial products from plants and other agricultural materials. Bills have been proposed in both the House and Senate in the last 18 months which would stimulate public and private research on commodity-based products, as well as their use.

Legislation Influences the Focus of Agricultural Research

Congress created the Federal and state agricultural experiment stations system in 1887 to promote "scientific investigation and experiment respecting the principles and applications of agricultural science." For almost 80 years, the major thrust of agricultural research was to expand the productive capacity of the farm sector. The resulting innovations, such as labor-saving equipment, disease-controlling pesticides and drugs, and hybrid and other improved seeds, to name a few, markedly changed the character of U.S. agriculture. Farming became a capital-intensive industry, heavily dependent on scientific discovery and technological innovation.

At the same time, a host of new issues related to agriculture emerged. With intense use of chemicals and pesticides came new concerns about the environment and natural resources. Consumers began to raise questions about the health, safety, and nutrition of the American food supply.

By the 1960's, Congress and the public demanded that these and other new issues be considered in the agricultural research agenda. As a result, federal expenditures for research began to shift away from production and marketing studies to natural resources, nutrition, food safety, and rural development.

Despite the demand for new research thrusts, a large segment of the research community steadfastly held to their production orientation. Thus, in 1977, Congress intervened in the context of the omnibus agricultural and food legislation to strengthen and direct agricultural research in the context of the omnibus farm legislation. Title XIV of the Food and Agriculture Act of 1977 represented a turning point for agricultural research. In the bill, legislators for the first time

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specifically outlined broad areas in which new research initiatives were needed. Among those cited were the development of new crops to "expand our use of varied soils and increase the choice of nutritionally and economically viable crops available for cultivation." New or improved food processing techniques (such as food irradiation) or value-added technologies were also included in the list of research areas.

The bill earmarked funds for problems of particular interest in the form of competitive and special grants programs. With the energy crises of the 1970's, for example, funds were authorized for the discovery and promotion of alternative fuel sources, including agriculture and forestry products.

The Agriculture and Food Act of 1981 renewed the research programs of the previous omnibus bill. However, it placed greater priority on several research needs, including aquaculture and rangelands and permanent pasture research.

The early 1980's also saw other attempts in Congress to expand research directions and opportunities. In 1982, 22 House members sponsored an organic farming support bill which would have financed a system of regional centers for research and extension efforts in organic agriculture. The bill was defeated.

In the same year, the Small Business Innovation Development Act was passed. The bill provided funding for innovative technological research in the private sector, particularly by "small and disadvantaged farms" and included such topics as plant and animal production and protection; food science and nutrition; forestry and related resources; and rural and community development.

While emphasis was placed on newer research areas in the 1981 act, it also provided renewed support for productivity research. This increased attention to the foundation of agricultural research was sparked by concerns about stagnant commodity yields. In the 1985 act, a new subtitle was added which wedded productivity research and resource conservation. Special emphasis was placed on "legume-crop rotation, the use of green manure, animal manures, and municipal wastes..., and biological methods of weed, disease, and insect control."

The 1985 Food Security Act did not include specific productivity enhancement projects, although one area--biotechnology--received strong support from lawmakers. It authorized $20 million for biotechnology research in fiscal year 1985. Support for biotechnology was not without reservations, however. The 1985 act included provisions to add coordination of regulations concerning biotechnology and risk assessment procedures to the list of "major needs and challenges." The Secretary of Agriculture was also directed to consider the impact of biotechnological developments on small farms.

Promoting New Products from Farm Commodities

While these policies promoted productivity and other farm-oriented research, the lawmakers also provided funding for scientific efforts to expand demand for agricultural products. The Agricultural Adjustment Act of 1938 created four regional research facilities to discover new industrial uses for farm commodities in surplus. The New Orleans facility, for example, concentrated on new uses for cotton products, sweet potatoes, and peanuts.

Today, there is renewed interest on the part of Congress in research to expand the demand for U.S. farm products. On April 9, 1987, Senator Tom Harkin (D-Iowa) introduced S.

970, the "Alternative Agricultural Products Research Act of 1987."

The Harkin bill was subsequently incorporated as an amendment to the Senate version of the Omnibus Trade Bill (H.R. 3). In March, Senator Harkin agreed to drop his proposal from the trade bill following negotiations on the compromise package of agricultural provisions in the bill. House conferees resisted the Harkin measure, preferring to sponsor a more wide-ranging agricultural research bill of their own later.

In June, Senator Harkin's bill was passed as an amendment to the Biotechnology Competitiveness Act of 1987 (S. 1966). The bill would authorize $75 million in each of the next 20 years for projects to develop new industrial and commercial products from agricultural commodities.

Projects would be selected by the New Products Research Board, established in the U.S. Department of Agriculture. The six-member Board would select projects based on a number of factors, including the need for the type of product contemplated, its potential market, the time necessary to develop the product, and the ability to grow the plants used. Board members would also be required to consider the impact on Federal crop subsidies and other agricultural assistance program costs.

In response to the Harkin bill, the House Agriculture Committee introduced its own agricultural research bill in July. H.R. 5056, "The Agricultural Research Act of 1988" is more comprehensive than the Harkin proposal. Title I of the House bill, for example, would establish a competitive grants research program designed to explore alternative production methods. Title III would create a research program to measure microbiological and chemical agents in or affecting agricultural products.

Like the Harkin bill, H.R. 5056 would promote cooperative public and private development of new uses, applications, technologies, processes and products from agricultural commodities. The act also seeks to improve economic development in rural areas through the introduction of new agricultural products.

Grants would be awarded on a competitive basis to State agricultural experiment stations, public and private educational institutions, other public and private research institutions and organizations, Federal agencies, and individuals.

Grants would be awarded by the National Institute for Alternative Agricultural Products, established by the bill. The nine board members would be appointed by the Secretary. One third of the members would be leading representatives of relevant scientific disciplines. The remainder would include producers and processors, as well as persons engaged in product development and marketing.

H.R. 5056 would provide a direct link to potential commercial markets by requiring that any research and development project proposal for new products must include a commercial U.S. company willing to invest at least 20 percent of the total cost of the project. The company must also commercially produce the new product under licensing or royalty agreements.

Bill Would Assist in Commercializing New Products

Bills proposed on May 19, 1988 by Senator Kent Conrad (D-ND) and Representative Timothy Penny (D-MN) would assist in commercializing new industrial products and processes which use traditional and new agricultural crops and forestry products. The "Agricultural Research Commercialization Act" (S. 2413 and

H.R. 4651) is based on the recommendations of USDA's New Farm and Forest Products Task Force that lawmakers establish an autonomous, nonprofit corporation to promote and facilitate the development and commercialization of new farm and forest products. The Task Force evolved in mid-1985 from a previous USDA Challenge Forum designed to examine the current and potential agricultural situations.

The Senate and House bills would establish an independent nonprofit corporation under USDA, called the Agricultural Research Commercialization Corporation (ARCC). The ARCC would assume part of the initial risk of commercialization ventures by providing low-interest loans, grants, repayable grants and loan guarantees.

The ARCC would consist of 10 to 12 regional centers around the country serving diverse agricultural regions. The centers would be responsible for providing financial assistance to approved projects to commercialize new, non-food, non-feed uses for farm and forest products. The assistance could be used for all aspects of the commercialization process, from prototype testing and market development to factory construction and worker training.

Companies applying for assistance must demonstrate that they have committed their own resources to the projects. They must also show that they have access to private business enterprises which will provide additional resources, but that adequate private sector funding is not available. Proposals demonstrating that matching funds are available from the public or private sector would receive priority in the selection process. Applicants must prove that projects will be self-sustaining.

Senate Bill Would Promote Private Sector Research

Senator John Glenn (D-Ohio) has proposed a bill designed to develop markets for new, nonfood, uses for agricultural commodities. S. 2298, the "Agricultural Commodity-Based Plastics Development Act" addresses both the issues of the health and prosperity of the farm sector and the serious environmental problem of disposing of plastic waste.

The bill would provide incentives for further private sector market development of technology which produces degradable plastic products from agricultural commodities. A wide variety of products, including plastic packaging, bags, milk jugs, meat trays, diaper liners, fast food containers, and pharmaceutical packaging can be produced by combining starch made from corn and other grains with conventional plastic resins. Estimates show these corn-starch based plastics could replace 30 to 45 percent of the low-density polyethylene plastics used each year. At the same time, these biodegradable plastics could produce an additional market for approximately 112 million bushels of corn per year.

The Glenn bill calls for preferential procurement of degradable plastic products by the Federal government in order to encourage development and adoption of the technology. Special emphasis would be placed on agricultural-based technologies. S. 2298 directs the General Services Administration (GSA), the purchasing agency for the Federal Government, to make degradable plastic products available to agencies. To cover the differences in costs between conventional products and degradable ones, $20 million would be provided annually for the next 3 years.

The proposed bill also establishes an interagency working group to develop and coordinate implementation of the act. The group would be

composed of: the Secretaries of Agriculture, the Navy, Defense, and Health and Human Services; the administrators of GSA, the Environmental Protection Agency, the Food and Drug Administration, and the Veteran`s Administration; and the Director of the Fish and Wildlife Service, and the Commandant of the Coast Guard. In addition, the heads of all other Federal departments and agencies engaged in research or studies concerning plastics pollution would participate in the board.

Debate on Agricultural Research in Coming Months

The bipartisan interest in agricultural research suggests that debate will continue on these and other proposed bills during the 100th Congress. Hearings will be held in August on the comprehensive House bill, H.R. 5056. In the months ahead it is likely that debate will focus on the Conrad, Harkin, and House Agriculture bills.

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DEVELOPMENT OF NEW AGRICULTURAL COMMODITIES AND USES: A RELEVANT FARM POLICY GOAL?

Carl Zulauf and Norman Rask*

During the last half century, one prominent feature of U.S. farm policy has been supply control. The need for supply control programs was in part generated by the success of federally sponsored agricultural research in increasing the productivity of U.S. farmers. The contradictions in this policy mix have often prompted calls for elimination of supply control programs and/or federally sponsored research. Regardless of the merits of these programs or the reality of the barriers to eliminating them, a third option is to expand research on new agricultural commodities and uses. This reduces the need for supply control programs and provides additional consumer products.

Interest in this option is growing in part because an increasingly competitive international food export market reduced the growth of U.S. farm exports during the 1980s. In addition, U.S. domestic food consumption is largely limited to the rate of population growth. Another consideration is that biotechnology may significantly alter the composition and relative profitability of a wide range of agricultural products.

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Given the attention being focused on developing new commodities and uses, some of the current research, along with the problems it confronts, are discussed in this paper. Concluding observations are made about the implications of such research, especially for the research mission of the U.S. Department of Agriculture (USDA) and the land grant universities.

Overview

Development of new commodities and uses is not a new idea. It is as old as low farm prices. For example, during the 1930s, chemist William Hale promoted chemurgy, the processing of farm commodities into industrial products. While most proposed new commodities and new uses fade from view, the 20th century has produced one major success story--soybeans. Soybean acreage increased from 3 to 70 million between 1930 and 1980, driven largely by the need for high-protein livestock feed to satisfy growing domestic and foreign demand for meat (U.S. Department of Agriculture 1972; 1986). Other, though more limited, successes include sunflowers on the new commodity front and corn sweeteners on the new uses front.

The current interest in new commodities and new uses includes several initiatives at the Federal level. First, the Food Security Act of 1985 contained a provision that "the Secretary of Agriculture shall conduct a research and development program to formulate new uses for farm and forest products" (U.S., Congress 1985, p. 214). The

provision states that, to the extent requests are made for matching funds by universities, private industry, and Federal and State entities, the Secretary of Agriculture must spend at least $10 million per fiscal year through 1990 (U.S., Congress 1985). Second, in 1987, the Senate passed the "Alternative Agriculture Products Research Act of 1987." This bill would establish a 20-year program providing $75 million per year to develop alternative uses for surplus crops (Congressional Quarterly, Inc. 1987). The House of Representatives has not acted on this bill. Third, in 1987, the New Farm and Forest Products Task Force commissioned by Secretary of Agriculture John Block and composed of members from business, academia, the farm sector, and government proposed the following goal: "to develop and commercialize within 25 years, an array of new farm and forest products, utilizing at least 150 million acres of productive capacity, to meet market needs representing net new demand for agriculture and forestry production" (1987, p. 2).

New Commodities

In addition to reducing surplus farm production capacity, the search for new U.S. farm commodities has been driven by the desire to substitute domestic production for foreign imports. For example, kenaf, an annual fiber crop not currently grown in the United States, could supply raw material for manufacturing newsprint (American Soybean Association, July 13, 1987), approximately 70 percent of which is now imported (U.S. Department of Commerce 1986). Other frequently discussed new commodities include guayule, a source of natural rubber; euphorbia, a source of raw material for oil refining; crambe and rapeseed, sources for lubricating oils that do not break down quickly or catch fire; and jojoba, which produces a better replacement for sperm whale oil than any of the currently available synthetic lubricants (Stucker and Stucker 1984). Sperm whale oil, a key industrial lubricant, cannot be imported because sperm whales are an endangered species.

Many of these new commodities face serious obstacles to expanding production. For example, the jojoba plant takes 5 years to produce mature seeds. In addition, a jojoba plant produces either male or female flowers, with only the female flower containing the valuable seed (Stucker and Stucker 1984). Furthermore, the plant must bloom before the type of flower can be determined.

These new commodities often also face marketing constraints. To illustrate, the high erucic content of rapeseed oil gives this oil its desirable lubricating properties (Stucker 1983). However, it also makes rapeseed oil toxic. To eliminate this problem, a new variety of rapeseed, called double-low rapeseed or canola, has been developed. This rapeseed variety is low in both erucic acid and glucosinolates. These substances, which are present in rapeseed meal, can cause enlargement of animal thyroids, slowing weight gain and damaging heart tissue (Stucker 1983).

Canola is currently grown successfully in Canada and Europe. However, its oil does not possess the desirable lubricating properties because the erucic acid content is too low. Furthermore, oil and meal from canola compete directly against soy oil and meal in food and feed uses. Edible rapeseed is Japan's second largest oilseed import, and the United States' import of canola oil from Canada is growing (U.S. Department of Agriculture February 1988).

Last, farmers have been slow to support research on many of these new

commodities because they cannot be grown in most U.S. major farm production areas. For example, jojoba is a desert plant which grows wild in the Sonoran Desert region of Arizona and Mexico.

New Uses

New uses can be for food and non-food purposes. Non-food uses are the most likely to yield a net positive market impact because new food uses generally end up displacing traditional food products. For example, consumption of corn sweeteners increased from 19 pounds per capita in 1970 to 57 pounds per capita in 1984, primarily because of the development of high fructose corn syrup (U.S. Department of Agriculture December 1985). In contrast, over the same period, consumption of cane and beet sugar declined from 102 to 68 pounds per capita. Total consumption of caloric sweeteners increased only 4 pounds per capita.

Current interest in non-food uses centers on soy oil and corn. One reason is that these two commodities have relatively large surpluses. Another is that both have a history of non-food uses, although in small quantities. Soy oil is currently used in resins, plastics, and cosmetics, among other products (Hazera 1983). Starch from corn is used in paper products, building material, textiles, adhesives, ethanol, and other products (U.S. Department of Agriculture May 1986).

A new use currently being pushed for soy oil is its use as a dust suppressant for grain and feed (American Soybean Association, March 16, 1987; November 9, 1987). Grain dust is an explosive hazard in elevators, while feed dust in confinement buildings can cause respiratory problems in humans and animals. When mixed in proper proportions, soy oil effectively suppresses dust. The potential problem is rancid grain or feed when too much oil is used under the wrong conditions. There are also effective competitors, such as mineral oil as a grain dust suppressant. On the positive side, recent studies suggest that soy oil can reduce fungal mold growth in grain (American Soybean Association June/July 1988). The American Soybean Association estimates that the annual use of soy oil as a grain dust suppressant could equal 23 million bushels of oil-equivalent soybeans (American Soybean Association, March 16, 1987).

Soy oil is also being touted as an alternative to petrochemical printing ink. More than 300 newspapers have tested or are using soy oil ink, and the potential market is estimated at 28 million bushels of oil-equivalent soybeans (American Soybean Association, April 13, 1987; May 2, 1988). Soy oil ink is biodegradable, which reduces waste disposal problems. It also eliminates the "rub off" problem associated with petrochemical inks.

Corn is hailed as a source of numerous new uses, most tied to utilization of corn starch. Corn starch can be turned into a highly absorbent "super slurper" which can be used in diapers, body powders, and in filters that remove moisture from fuels. It can also be manufactured into material which can be used to encapsulate pesticides, pharmaceuticals, and food flavoring products, imparting a time-release characteristic to the product. Other corn starch-based products include a de-icer and an ingredient used in making artificial snow (Corn Refiners Association, Inc. 1988).

However, the new corn starch product that is generating the most current interest is biodegradable plastics. Traditional petrochemical plastics, when burned, generally emit toxic fumes. The only option is to bury them in landfills, but most are

either inert or degrade slowly. Thus, their growing use as packaging material conflicts with the increasing scarcity of landfill space, especially in the Northeast. Reflecting this concern, Suffolk County on eastern Long Island recently enacted legislation that banned polystyrene or plastic foam and polyvinyl chloride, which is used in plastic wrappings and grocery bags (Gutis 1988).

Biodegradable petrochemical plastics have been developed, but they require sunlight to degrade. In contrast, natural-based plastics degrade by hydrolysis after exposure to moisture. Furthermore, when burned, natural-based plastics yield environmentally safe residues (Lipinsky and Sinclair 1986). Drawbacks to natural-based plastics include their sensitivity to water and their brittleness when dry (Otey and Doane 1987). To cope with these drawbacks, natural-based plastics have been blended with water-soluble plasticizers and/or synthetic plastics. Thus, current research suggests natural-based plastics will likely be blended with synthetic plastics, much as natural and synthetic rubber are blended to form radial tires.

While only time will confirm if the new corn starch products will be commercially successful, several companies have built or will build plants that utilize corn starch. They include Eastman Kodak Company, American Maize-Products Company, Archer Daniels Midland Company, and National Starch and Chemical Corporation (Corn Refiners Association, Inc. 1988).

Even if the new corn starch products are commercially successful, their benefits to the farm economy will be limited by the co-product concern. Corn starch products use only part of the corn kernel. The residue includes corn oil and a high protein co-product, which compete against soy oil and meal. Rask et. al. (1985) found that a ton of corn oil and high-protein co-products displaced consumption of soy oil and meal by as much as 0.84 tons. Thus, corn farmers win, soybean farmers lose; and the increase in net farm sector income is limited even though corn starch is used in industrial applications. Maximum benefit from new corn starch products requires that new uses be found for all, not just part, of the corn kernel.

When examining the potential for new uses of farm commodities, it is essential to keep the history of corn-based ethanol in mind. Specifically, technological feasibility is only a first step. The product must be economically competitive. A recent study by USDA found that, without the Federal excise tax exemption, ethanol would not be competitive as a fuel blending agent unless crude oil prices are at least $40 per barrel given corn costs of $2.00 per bushel and a 50 percent byproduct recovery rate (U.S. Department of Agriculture April 1988). With the subsidy, ethanol is competitive at a $20 crude oil price. Given these assumptions and findings, the study concludes that ethanol is more competitive as an octane enhancer because its octane value is over 30 percent greater than regular unleaded gasoline (USDA April 1988).

Consumers must also view a new commodity or use as a high quality, low hassle product. Consumption of ethanol blends remains low in part because, whatever the scientific merit, the consuming public remains skeptical of its reliability (see U.S. Department of Agriculture April 1988, pp. 14 and 16 for a discussion of this issue). In addition, new products must pass the tests imposed to ensure compliance with public health and environmental standards.

While ethanol blends can reduce vehicle carbon monoxide emissions, they increase ozone problems. Both carbon monoxide and ozone levels are regulated under the Clean Air Act. Carbon monoxide is a winter problem, while ozone is a summer problem (U.S. Department of Agriculture April 1988). Thus, ethanol may be useful only as a seasonal blend in the fight against air pollution.

Concluding Observations

Developing new commodities and uses requires developing a complementary set of production practices, efficient processing methods, and coordinated marketing networks, not to mention a saleable product. Only when all sides of this many-sided equation come together is a viable consumer product created. This process is time consuming and highly risky. For every success, there are hundreds, maybe thousands, of failures.

The time-intensive nature of developing new commodities and uses suggests that the currently-discussed new commodities and uses are unlikely to make a major impact on U.S. agriculture in the immediate future. This conclusion does not preclude progress, particularly on soy oil and corn starch products. But it is important to remember that the soybean plant was available for use and development in the United States more than 100 years before it became successful (Stucker and Stucker 1984).

Research on new commodities and uses is fundamentally different from research on new production technology. New production technology has a known research market: the producer of an existing good or service that wants to produce at the lowest cost. The researcher can, therefore, focus on a relatively narrow issue: develop a new technology that lowers the cost of production. In contrast, research on new commodities and uses must address supply, demand, environmental, and distribution concerns.

Historically, one role for publicly funded research is to conduct research that carries a high economic risk for the private sector and thus, is underfunded from a societal perspective. Although no evidence exists on whether development of new commodities and uses is underfunded in the private sector, underfunding appears likely, given the complex and highly risky development process.

The current relevancy and future direction of the land grant university mission has been a subject of recent debate (McDowell 1988 and Schuh 1986) focusing on revitalizing the applied research and public service roles. As this debate unfolds, it is important to keep in mind that the agricultural-related mission of the USDA land grant university complex has been to improve not only the well being of rural America but also the quality and quantity of food available to American consumers. This consumer orientation has been instrumental in generating widespread public support. Revitalization of the applied research and public service roles of the agricultural mission of the land grant System, if it occurs, will therefore, likely contain a consumer component. A concerted effort to develop new commodities and new uses would be consistent with the revitalization of the land grant mission, and may even enhance the probability that the revitalization may occur.

Enhancing new commodities and new uses research will probably require a painful reallocation of current agricultural research dollars. Increased spending on such research, however, could improve farm income,

reduce farm program costs, and yield a better mix of consumer products. Achieving these objectives would enhance the national stature of public agricultural research and the land grant mission.

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Assessing The Impact Of New Technology Using `Ex Ante' Economic Analysis

by John W. McClelland and Fred Kuchler*

Policymakers are often required to make decisions affecting the course of economic events before information about the effects of these decisions is known. This is especially true when policymakers are reacting to exogenous changes in technology that could have a profound impact on U.S. agriculture. In such cases, the demand for information far exceeds the supply of timely, accurate analyses. Most studies of technology assessment appearing in the agricultural economics literature compare historical costs and benefits or measure rates of return from previous investments in research. The benefits of hindsight may not be available to researchers considering future policy questions (Offutt and Kuchler 1987). This paper draws a distinction between `ex ante' analysis and `ex post' analysis, the latter being the avocation of most research economists. Our discussion will focus on how `ex ante' analysis can influence the research agenda. We will also discuss some of the pitfalls inherent in `ex ante' analysis. Examples of our recent work on `ex ante' analysis of animal growth hormone will provide illustrations of these points.

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Advances in new technology involve several developmental steps, including scientific discovery and scientific and economic feasibility. The first refers to what is commonly known as basic science, where new processes are brought into the scope of human knowledge. The second refers to the application of basic knowledge in wide-spread experimentation. The third refers to the movement from the laboratory setting to the marketplace. This last transition is the antecedent of `ex ante' analysis, and it is here research economists must ply their trade. However, it is important that interaction between scientists, economists, and policymakers occurs before analysis of the effects of the newly developed technology is required. This interaction should be used to identify potential applications of scientific discoveries, and to coordinate a research effort which is geared to answering important policy questions. It is this point in the process that is most crucial for the economist because they are the link between policymakers and scientists in `ex ante' analysis of new technology.

First Steps In Analysis

Before beginning an analysis, it is important to determine just what we know about the subject to be considered, what would be useful to know, and what is

disputed. We turn to the scientific literature for information on the quantitative relationships among inputs and outputs. Scientists can often solidify our notions about the state of a particular technology, and provide us with the most current research results. Scientists can also indicate which questions about a technology are open questions, and what steps are being taken to address them. Policymakers are a source of questions about what we need to know. New technology can have an economic impact at many different levels in society i.e., consumers, producers, taxpayers, but which level has priority? Policymakers provide direction to the analysis by specifying the target group(s) for particular policies. When economists know the target of their analysis it is possible to begin evaluating which questions can and should be answered.

Knowing what is in dispute about the effects of a new technology at first seems easy, because everything is disputed. The difficult task for the researcher is to sift through the available data and arrive at an objective evaluation of the facts. It is important that this evaluation considers input from scientists, policymakers, and other public and private information. A primary focus of evaluating and classifying information on the effects of a new technology should be an assessment of uncertainty with respect to these effects.

The distinction between `ex post' and `ex ante' analysis, in terms of the principles discussed, comes from the information available for analysis, and the level of uncertainty inherent in that information. In an `ex ante' analysis there is no `real world' data or experience to rely on. Analysis of `ex post' technical change is greatly benefited by the possibility of collecting data that has been generated in an economic environment. Using economic data allows the researcher to investigate decisionmaking that is a direct result of economic forces brought on by the technical change. Although data for `ex post' analysis can be difficult to obtain and subject to errors, it is, at least in theory, available. Thus, `ex post' analysis attaches to it an aspect of certainty associated with the `real world' nature of the data, whereas, `ex ante' analysis can claim no such grounding. `Ex ante' analysis must rely on data from narrowly focused scientific experiments which are devoid of economic meaning, and the conjectures of would-be experts.

Scientists most often design experiments to answer narrowly defined questions about the behavior of a new technology under ideal conditions. Scientific experiments do not, as a rule, reveal the complete set of changes in response functions, nor are they a result of economic optimization. If we could know the response function, then many farm management questions could be addressed, and some aspects of aggregate economic behavior considered. Unfortunately, scientific experiments can often only be interpreted as estimates of percentage changes in output which are attributed to the technology. That is, we have one point on the `new' production function, and one point on the `old' function making analysis of input substitution effects and so forth impossible. Furthermore, these estimates do not reflect any

optimization of input utilization and, thus, provide less than complete information for economic analysis.

There are additional problems inherent in data from laboratory experiments. The extreme variability among results from different experiments often occur because inputs may vary across experiments and environmental conditions are not always identical. Factors which may limit use are not considered. These include climate, costs of technology adoption, the impact of the technology on continuing farm operations, and risks (both production and price risk that are a result of adoption) of the new technology. The absence of information on these factors add to the economist's uncertainty when interpreting experimental results.

Using What We Know to Do `Ex Ante' Policy Analysis

Given the data and information available, the economist's main task is to construct the most informative economic analysis possible. In all likelihood, it will not be rigorous, because there is no `real world' basis for this analysis. Rigorous examination of behavioral economic relationships among variables is not feasible because the large number and variety of required assumptions make interpretation difficult. Simple discussions of broad economic factors are more appropriate in this type of study because it allows the investigator to be free from the burden of microscopic examination of empirical questions, choosing functional form, specifying an estimator, and pouring over endless computer runs. The investigator can rely on simple calculations and generate dozens of scenarios in order to construct a range of possible changes. Then the economist can attempt to determine which subsectors of the agricultural economy are especially sensitive to changes within these bounds. Establishing a range of possible effects also allows the investigator to address the issue of uncertainty in the analysis.

Highlighting uncertainty has a number of positive aspects to it. First, it serves policymakers well when they are told, unambiguously, what is and is not known, and how confident analysts are of that knowledge. Presenting a number of simple scenarios that exhibit a range of results demonstrates the level of uncertainty in the underlying information. If the data and information are the best available, the amount of uncertainty is itself an indicator of what can be known.

A second compelling reason for specifying the level and extent of uncertainty in `ex ante' analysis is setting the research agenda itself. If a question is worth the considerable time and expense of performing `ex ante' analysis, further investigation of questions, for which there is a great deal of uncertainty, will be likely to produce richer rewards. If specifically designed experimental data revealing these relationships were available, techniques such as optimal control and dynamic programming could be applied. Results of this kind of rigorous investigation could allow a `bottom up' approach using micro level information to address many questions concerning aggregate utilization of variable inputs, buildings, and land. Experimental data is especially well suited for response function analysis of

productivity relationships because there is no simultaneous equation bias associated with `real world' data, thus allowing a primal estimation approach.

`Ex Ante' Analysis of Animal Growth Hormone Technology

Scientists have known for many years that injecting growth hormone into dairy cattle or meat animals could increase productivity and speed growth. The effect in dairy cows[1] is an increase in milk production and overall feed efficiency (the amount of feed required to produce a unit of output). In meat animals, the effect is an increase in overall feed efficiency and growth rate, and changes in carcass composition. However, use of growth hormone remained little more than a scientific curiosity until the advent of recombinant DNA (rDNA) technology. Prior to the introduction of rDNA technology in the mid-1970's, the only source of growth hormone was animal cadavers. By using rDNA techniques, in conjunction with standard fermentation techniques, scientists are now able to produce large amounts of growth hormones at a reasonable cost (Kalter et. al. 1984). This, in turn has allowed scientists to begin a program of research into the effects of growth hormone administration on dairy cows, hogs, and other livestock. Reporting the extreme variability of laboratory experiments presented the first set of problems in our `ex ante' analysis. The results of early experiments indicate a great deal of variability among studies. Reporting results is easy; dealing with the inconclusiveness of results is troublesome.

Results from laboratory experiments indicate a substantial difference in product output and input requirements for growth hormone-treated livestock. In dairy cattle the reported percent changes in milk production ranged from about 5 percent to 40 percent. Growth rate responses for market hogs ranged from about 5 percent to 20 percent. Growth hormones effect on feed efficiency could change aggregate feed demand. Laboratory results indicate a range of 4 percent to nearly 30 percent increases in feed efficiency for hogs. This increase could affect marketing weights for hogs and market prices. Attempting to forecast a range of possible changes in feed markets over such a wide range could lead to significantly different interpretations.

The various studies of bovine growth hormone (bGH) reveal the economist's difficulty in interpreting variable laboratory results. The U.S. Congressional Office of Technology Assessment (OTA) assumed that the complex relationship between bGH use, feeding, breeding, environment,and milk output could be contained in a single summary statistic; all treated cows will produce 25.6 percent more milk (1986). Another study assumed a per-cow productivity increase of 13 percent and limited the rate of adoption to 75 percent of dairy farmers (U.S. Department of Agriculture 1987). These studies reached opposite conclusions regarding changes in farm structure. The many factors that could affect productivity may turn out to be unimportant and a single number might be shown to be an adequate characterization of the productivity relations. Until this is shown conclusively, these

measurements should be recognized as very crude.

Our approach in dealing with these highly variable results from biological research reports is to link this variability to the uncertainty within the analysis. Impacts on particular markets are constructed by making assumptions leading to the largest possible impacts. Varying factors responsible for uncertainty yields an upper bound on impacts and reveals impacts sensitive to assumptions. When upper bound estimates are small, we can be confident that most possible impacts would be modest. For example, when considering the impact of growth hormone technology on the feed industry we assumed 100 percent instantaneous adoption of growth hormone throughout the dairy, beef, and hog industries. Outputs and inputs were allowed to vary over documented ranges. Some of the largest calculated changes occurred in soybean meal requirements because we incorporated findings from the scientific literature that indicated increased production of animal protein required additional inputs of high protein feeds. Calculated short-run changes in soybean meal requirements were very small, only a 3 to 5 percent increase in the aggregate, when increases in animal productivity were assumed equivalent to the lowest laboratory generated increases. The central tendencies of laboratory results showed only slightly larger impacts. Short-run impacts were significant only when extreme results from laboratory experiments were considered. Under these conditions, soybean meal requirements were calculated to increase 44 to 45 percent. The utility of this calculation comes from the inability to generate such results without making highly improbable assumptions. When these assumptions are made obvious, we can postulate likely impacts to be smaller.

Besides the 100 percent instantaneous adoption rate, we had to make several other assumptions: no use-limiting factors implying uniform changes in production for all producers, and changes in feeding requirements for treated animals. In our attempt to portray possible impacts, we also neglected the dynamic adjustment paths which will provide crucial information about short and medium-run effects. Until the dynamics of the production process are investigated in a thorough and rigorous way, it will be difficult to reduce the level of uncertainty in results reported in the absence of this knowledge. This example is characteristic of the difficulties in assessing new technology `ex ante'. To overcome these difficulties we must develop new research strategies which integrate the expertise of policymakers, research economists, and agricultural scientists.

The Economist's Role in Developing Ex Ante Analysis of Technology

There may be many ways in which a particular technological advancement comes to light. In this discussion we assume that the flow of information is reasonable and that important issues are seen well in advance of the time the innovation is expected to be economically feasible. Economists have the special knowledge required to evaluate the transition of an innovation from the laboratory to the marketplace, and the consequences this will

have on existing markets and institutions. Using a multi-step approach, the appropriate direction of the research effort will ideally be a sequence of output which narrows in scope and increases in rigor. As the first `ex ante' results become available, the agenda should shift to specific questions contained in the original report, and hopefully to those questions which appear to be the greatest source of uncertainty. It is at this point that additional resources will be required, particularly in data acquisition. For example, an extension of our work on the effects of growth hormone will require data that are specifically generated to answer the open questions about dynamic production processes in animal agriculture using growth hormone technology. This requires experimental data from an appropriately designed experiment, one that considers the needs of economists as well as animal scientists. On some occasions these type of data exist, but frequently they do not, and it may be difficult to convince scientists of the need for it. This is in large part the fault of economists because of our inability to communicate our needs to members of the scientific community. But, the willingness of scientists to consider experiments which have a broader focus also is required.

Communication with policymakers is critically important for economists in determining the research agenda for ex ante analysis. Interaction between the two allows for the exchange of viewpoints on the possibilities for the analysis, and for some agreement on important issues. Policymakers have to be open to new information and new analytical formulations throughout the duration of the project. Continued support of the research agenda will lead to improvements in information quality and quantity. Researchers must also be ever cognizant of the multidiciplinary nature of their work.

Conclusions

`Ex ante' analysis of the economic consequences of new technology adoption is an important and useful tool for researchers and policymakers. It gives researchers an opportunity to develop a base of information not only for current analysis, but for future work. Issues become more clearly defined and potential pitfalls can be identified. Policymakers benefit because `ex ante' information is made available and important policy issues can be identified early. This should enhance the overall research agenda, but places the burden of initiating cooperation between economists and biological scientists squarely with economists. However, all researchers must take a role in providing information on the costs and benefits of future research.

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Trade Policy Reform: The Role of Natural Resources in Institutional Change

by Stephen L. Haley and John Sutton*

Agricultural trade reform is one of the main objectives of the Uruguay round of the General Agreement on Trade and Tariffs (GATT) negotiations. The United States, Canada, the "CAIRNS" group[1], and the European Community (EC) have entered proposals, which, to varying degrees, call for a more liberalized trading environment over time. A major driving force for reform has been the mushrooming costs of price and income supports in the United States and EC. In the United States, these outlays increased from $4 billion in 1981 to a high of $26 billion in 1986. In the EC, they have rose from $12.9 to $26.2 billion during the same time period. The other commodity exporters, whose abilities to subsidize production and trade are not nearly as great as that of the United States or EC, call for negotiations to reduce high levels of distortions.

Apart from trade policy reform, there has been a growing concern over agriculture's role in environmental degradation, particularly in the industrialized countries. In the United States, this concern has led to limited environmental policy reform. One example is the Conservation Reserve Program (CRP) a major purpose of which was to retire the most erodible land from production. In the EC, proposals to limit application of fertilizers and manure on cropland increasingly are being studied due to contamination of groundwater. Conservation proposals with some of the aspects of the CRP are under discussion. Further signs of international concern are evident in the United Nations' study entitled "Our Common Future." It mentions a number of environmental problems facing practically all nations, such as loss of soil resources, deforestation, desertification, and the problems associated with chemical and pesticide use. In addition, the World Bank has directed that all projects it funds or finances must take into account environmental impacts.

Natural resources and how they are used figure prominently in the basis of a nation's capacity to produce and trade agricultural commodities. Resource economists often argue that these resources are inefficiently used either because of biased price signals resulting from government policies, or due to the market's failure to value "public" goods and producers' use of them. Trade economists may worry that environmental policies may increase production costs such that the nation's competitiveness in international commodity markets may be affected. Losses in world markets would adversely affect farm income,

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1 The CAIRNS countries are a group of agricultural exporters who favor trade liberalization. These countries include: Argentina, Australia, Brazil, Canada, Chile, Columbia, Hungary, Indonesia, Malaysia, New Zealand, the Philippines, Thailand, and Uruguay.

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and put increased pressure on an already diminished farm sector.

This paper will show a common conceptual framework joining resource and agricultural trade economists. This framework is based on changing factor endowments and how society creates the means of valuing the changing resource base. These changes affect a nation's underlying comparative advantage, which in turn helps determine its pattern of trade. An examination of these phenomena implies refining existing theory about how institutions adjust to these changes.

This paper examines several topics. First, it looks at some of the complimentary perspectives of resource and trade economists. It then explores some theories of institutional development. Although these theories are not new, agricultural economists such as Schultz, Ruttan, Johnson, and others who share an interest in economic history and development have used them as the basis for policy recommendations. The theories give a wide perspective which tries to find ties between factor scarcity, institutional development, technological change, and political economy. Later, these ideas are applied to some of the problems affecting both fields. We conclude by suggesting that environmental reform is a topic appropriate to multilateral trade negotiations. Socially undesirable usage of environmental resources can be viewed as transfers from society to the agricultural sector. In this sense, they are akin to "Producer Subsidy Equivalents" or PSE's on which many aspects of the trade negotiations are to be based. If the value of the transfers can be estimated, it might be possible to negotiate their reduction on a multilateral basis. This type of negotiation would minimize the loss in competitiveness that any one country might bear as a result of environmental reform.

Resources and Trade

There are a number of areas which already interest both resource and trade economists. These include production externalities, technological change, transferability of technology across national borders, factor substitutability, applied welfare analysis, effect of trade policies on resource use, and the effect of resource policy on the volume and value of trade. The common link between resource and trade disciplines is through the derived demand for factor inputs.

Although resource and trade economists share common concerns, there has not been much communication between the two fields (Sutton 1988). For the most part, trade theory has been developed in a static context. Until recently, most of the theoretical insights have depended on special assumptions regarding competitive market structure in a world free from policy-induced distortions. Since these assumptions are rarely satisfied, most agricultural trade research has focused on empirical analysis of the implications of the distortions in output markets.

Unlike trade economists, resource economists have not been as wedded to a set paradigm. Much of their analysis is motivated by a focus on market failure stemming largely from production externalities and on intertemporal misallocation of resources. A recent concern of resource economists has been the increased variability in derived demands for natural resources due to greater international openness in output markets. Issues concerning resource depletion, public versus privately funded research, and the use of common pool resources are important to resource economists. These issues should be of interest to trade economists as well because they relate very closely to the cost structure dynamics underlying

agricultural production and comparative advantage.

There should be room for collaborative research between the two fields. Agricultural trade economists recognize that domestic policies and objectives have more bearing on trade outcomes than do trade policies per se. For their part, resource economists recognize that trade promotion policies influence the allocation of resources, usually in sub-optimal ways.

Perhaps one reason for a lack of interest of each field in the other has been an excessive concern with applying quantitative techniques to economic problems. Although much useful analysis comes from quantitative approaches, not much is learned about the dynamics inherent in a changing policy setting. An understanding of how institutions change through time can provide insight into some of the shared concerns of resource and trade economists.

Institutional Change

One way to define institutions is that they comprise the set of behavioral rules in which policies are made. They are the structure which governs the way policies are made and implemented. There is, however, no clear consensus on what factors cause institutions to change. On one extreme, Marxists argue that technological change dominates institutional change. Changes in modes of production predetermine changes in production relationships (that is, institutions). On the other hand, economic historians North and Thomas (1973) argue that the causality is reversed: institutional change necessarily precedes technological change. They argue that institutions change due to long-run changes in relative factor endowments. They cite the increasing scarcity of agricultural land relative to labor in Europe from 1000-1300. This scarcity caused pressure to limit common property uses of land. Later new agricultural labor practices based on owner-operatorship of land or use of wage labor developed as a result of labor scarcity in the 14th and 15th centuries. More intensive systems of agricultural production evolved as a result. More generally, North and Thomas relate institutional development based on economic efficiency criteria as a prerequisite to economic growth. They suggest that the need for efficiency may require a change in the definition of private property rights to reduce differentials between private and social returns to innovative activity.

Schultz (1968) argues that the primary source of institutional change is the rising economic value of human capital which accompanies economic growth. His emphasis is on the size of the income stream generated by technological change. He views institutional changes as lagged responses to this phenomenon. Although he agrees with North and Thomas that the movement of wages relative to rents is the primary reason for institutional change, he views the movement as a consequence of changes in technological relationships.

Ruttan (1971; 1978) tries to integrate the insights of North and Thomas and Schultz by recognizing that both have valid and not necessarily contradictory points of view. Institutions develop and change in response to changing factor supplies. The appropriate institutional setting is necessary to induce innovations that conserve on increasingly scarce factors. However, technological change generates new income streams. All else constant, increased income is partitioned according to the Ricardian scheme: the factor in most

inelastic supply receives the largest share. Distribution according to the classical model leads to pressure to redefine property rights in order to achieve equity in partitioning the new income streams. Thus, there is increased pressure for further institutional change.

For agriculture, Ruttan sees two forces in conflict. On one hand, rising agricultural productivity has increased the demand that the environment absorb agricultural residuals due to increased use of chemicals, machinery, irrigation, etc. On the other hand, rising income levels have increased the demand for environmental quality. There is demand for the effective disposal of industrial and agricultural residuals.[2] Because the tradeable goods sectors tend to produce the residuals, forcing these sectors to internalize the costs of controlling residuals biases consumption and production toward nontradeable goods. The previously free, unhindered use of environmental services acts as a production subsidy. The removal of the subsidy would increase the costs of producing these goods. The international terms of trade turn in favor of countries, presumably those at lower stages of development, which have a low demand for environmental services (Runge et al 1988).

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2 One consequence of the growth in institutions seeking to preserve environmental quality is the incentive to develop new technologies which conserve on the use of increasingly scarce environmental services. Although there is evidence that this type of innovative activity is taking place, there is serious concern regarding the unknown environmental effects of developments in biotechnology (Offut and Kuchler 1987). Also, there is the concern that with more research dollars being directed away from cost-reducing technologies, the long-standing dominance of the United States in various export crops may erode over time.

Policy Reform, Trade, and Environmental Quality

What are the implications of the foregoing discussion for possible collaboration between trade and resource economists in the GATT negotiations? Central to this question is the role of agriculture in the process of economic growth and institutional development.

With economic growth, the decline of the relative position of agriculture within a country is inevitable. Consumption patterns shift away from agricultural goods as an economy grows. In general, the income demand elasticity for agricultural goods is less than one, and it declines as income increases. Even with the tremendous increases in agricultural trade volumes commencing in the seventies, the relative size of agricultural sectors of most countries, measured as a proportion of overall gross domestic product (GDP), has continued to shrink. For industrial market economies, agriculture's share of GDP has decreased from 5.7 percent in 1960 to 3.2 percent in 1981 (World Bank 1984). For developing economies, the change for the same time period has been from 33.8 percent to 21.7 percent.

With changes in agricultural productivity, there is increased demand for new inputs, most of which come from the non-farm sector. As Johnson (1987) has pointed out, the return to agricultural labor and capital is determined largely by returns to comparable factors in the rest of the economy. Even though

important within a country in explaining comparative returns in the short run, farm output prices tend to explain little of the differences in farm incomes across countries.

This point seems little appreciated by many agricultural policymakers. For developed countries, policies which keep domestic agricultural prices high have the effect of keeping resources in agriculture which might otherwise find higher-valued uses elsewhere in the economy. Johnson has argued that distortionary U.S. agricultural pricing policies are an important cause of the loss in cost competitiveness in world commodity markets. In this same vein, Ruttan has noted that U.S. agricultural commodity programs and macroeconomic policies prior to the eighties have increased the value of land. These measures in turn have biased research toward the development of land substitutes. There has been over-investment in fertilizers and chemical application systems, and an under-investment in pest and soil management systems.

The trends toward agricultural protectionism and subsidization and overuse of environmental inputs are certainly not confined to the United States. Rather, they reflect the development process. Honma and Hayami (1986) show that the greater the cost of intersectoral labor adjustments corresponding to the shift in comparative advantage away from agriculture, the greater the demand for agricultural protectionism. As agricultural sectors become smaller as development proceeds, the costs of organizing for political lobbying becomes less. A smaller agricultural sector lessens the resistance of the non-agricultural sector to the provision of protectionist support.

Unlike developed countries, less developed countries (LDC's) tend to tax their agricultural sectors. Domestic policies turn the internal terms of trade against agriculture and depress agricultural producer prices. These policies typically take the form of overvalued exchange rates and the provision of high levels of protection to nonagricultural industries. As noted by Warford (1987), the return on investments in LDC farmland development and conservation are low. Low returns reduce both the ability and incentive to invest in leveling, terracing, drainage, irrigation, and other land improvements. Resulting erosion, salinization, and nutrient depletion makes rural poverty worse than otherwise. LDC policymakers tend to bias agricultural production toward food crops to keep urban food costs low. The cultivation of many of these crops, however, are more damaging to the environment than traditional export crops.[3] Input subsidy policies of LDC's can also have strong negative effects. The subsidies often encourage the wasteful use of scarce resources.

Many agricultural policies in both developed and developing countries are damaging in their effects on the resource base. There is growing recognition that these problems must be dealt with. Until recently, ecological concerns have been largely concentrated in developed countries. There is now, however, a realization in international lending institutions as well as in some LDC's that environmental damage caused by agricultural and industrial producers alike may constrain future growth prospects. The World Bank has begun to institute procedures that take

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3 Many traditional export crops grow on trees and bushes providing a continuous root structure and canopy cover. These crops include coffee, cocoa, rubber, bananas, tea, spices, and others. There are, however, other crops such as cotton and peanuts, whose effects on the environment can be more damaging.

strict account of the environmental impact of the projects that it funds. The United Nations has issued a major document calling for greater conservation measures (Brundtland 1987). There is growing political awareness in the U.S. Congress of the environmental effects of development projects directly and indirectly funded by the U.S. government (Wall Street Journal 1987). The institutional framework for an improved resource policy is coming as a precondition for development aid from abroad.

Implications For GATT Negotiations

The theme of this paper is that institutions develop in response to: a) changing factor supplies; and, b) dissatisfaction with the partitioning of income streams which are affected substantially by technological change and changing market structures. Both phenomena reflect a difference between private and social rates of return. In a world where political solutions often dictate economic outcomes, there is no invisible hand which will narrow the gap.

Presently there is deep concern regarding the generation of externalities by agricultural sectors in developing and developed countries alike. Countries differ in their assessments of the problem and how to deal with it. The problem is compounded by increasing subsidization of agricultural sectors in developed countries, and by policies which tax agriculture in developing countries. Governments are concerned about the tremendous budget outlays due to agricultural price and income supports. Our hypothesis is that broad economic objectives of fiscal policy reform, fair competition in world commodity markets, and demand for environmental quality can be joined to provide domestic political backing for reform. This backing may be desirable to provide a counterweight to both farm and nonfarm interest groups that increasingly favor closed markets and artificial restrictions on production.

This is a critical time for agricultural trade policy, and potentially a propitious time to improve resource policy. The Uruguay Round of the GATT began in 1987 and is likely to continue for several years. The atmosphere for policy reform is better than it has been in some time. As argued, there is finally an increasing consensus among many major grain exporters that domestic farm price and income policies have wrecked havoc on world commodity markets without having achieved many of the desired domestic outcomes. Not all participants, especially the EC, are likely to yield much without a lot of pressure being applied or major concessions in other areas being granted. One way to encourage reform, however, is to ally groups interested in environmental quality with the trade reformers.

World commodity models of the U.S. Department of Agriculture, the World Bank, the Organization for Economic Cooperation and Development and others quantify the likely effects of trade reform. These models emphasize the benefits of reduced government expenditures, gains to consumers in subsidizing countries, and gains to producers in nonsubsidizing countries. There is a research need for such trade models to assess the effect that the current disarray in world commodity markets has had for the environment. The social costs of the degradation need to be estimated to give a better idea of the implicit subsidies that farmers receive from society in some countries and consumers in others.

Trade negotiations offer a way for countries to simultaneously reduce the level of subsidies to either producers or consumers. Removing wrong price signals (either from private or government sources) should

change demand for environmentally sensitive inputs. Beyond this salutary effect, this paper argues that production externalities should be viewed as production subsidies from society to the agricultural sector. The challenge to researchers is to quantify the implicit subsidies and examine the comparative static and welfare results of removing these subsidies. With the rising institutional consensus that environmental issues must be dealt with, there exists the possibility that environmental reforms need not be enacted unilaterally by individual nations. Rather it may be possible to directly place environmental issues in the setting of trade negotiations. Because most countries follow both private and public policies which somehow abuse the environment, simultaneous reform is the surest way to minimize the relative loss that any one country may experience as a result of environmental reform.

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Farm Credit Policy in Transition: An Overview of The Agricultural Credit Act of 1987 with Selected Implications

by Delmar K. Banner*

With enactment of the Agricultural Credit Act of 1987, (P.L. 100-233) Federal policymakers responded for the third time in scarcely more than 2 years to imminent funding and financial crises facing the Farm Credit System. This article will briefly review the Farm Credit Act amendments which immediately preceded the '87 Act, provide an overview of major provisions of the '87 Act; and suggest selected policy implications.

Farm Credit I—The '85 Act

The deteriorating financial condition of the Farm Credit System and the significantly increased pricings of System securities during the latter half of 1985 prompted Congress to pass the Farm Credit Amendments Act of 1985, (P.L. 99-205). Signed into law only 30 days after legislation was introduced, the '85 Act:

o Established the Farm Credit System Capital Corporation to administer mandatory capital sharing among institutions of the Farm Credit System;

o Created backup authority in the Secretary of the Treasury to provide Federal financial assistance to the System upon certification of need by the Farm Credit Administration (FCA) and as appropriated by Congress;

o Restructured FCA as an arm's-length regulator with strong enforcement powers like those of the Comptroller of the Currency; and

o Shored up stockholder rights and access to information.

Stemming from the joint and several liability of System banks on outstanding Systemwide securities, mandatory self-help among System institutions was established as the threshold for government assistance under Farm Credit I. As a condition to certification for Federal assistance, the '85 Act required System institutions to commit their available capital surplus and reserves to assist financially troubled System banks and associations through the Capital Corporation.

Farm Credit II—The '86 Act

By the latter half of 1986, however, litigation blocked Capital Corporation efforts to conscript capital from the Farm Credit Banks and the production credit associations. At the same time, it was apparent that at year-end, the book value of stock in at least six Federal Land Banks would be worth less than par. This condition would trigger receivership of those district banks under FCA regulations. To avert that result, policymakers enacted "Farm Credit II", the '86 Act, in the final days of the 99th Congress.

The '86 Act removed the FCA from involvement in the direct approval of interest rates and interest rate plans of System institutions, an inappropriate role for an arms-length regulator. The chief result of Farm

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Credit II, however, was the authorization of "regulatory accounting practices" (RAP). Under RAP, troubled institutions of the System are permitted--for regulatory purposes only--to defer and to capitalize portions of interest costs and provisions for loan losses over periods of up to 20 years. RAP does not enter into the preparation of any financial statements published to stockholders and the public, except as a footnote reference where RAP has been applied.

The short term effects of the RAP were to avoid "stock impairment" (and thus receivership) and to permit an otherwise "impaired institution" to continue to retire borrower stock fully at par, even though its book value is less than par under Generally Accepted Accounting Principles. In these ways RAP was a "quick fix" to keep the doors open while averting serious loss in borrower/stockholder confidence if, on a widespread basis, System institutions were to begin retiring stock at less than par. The longer term effects of RAP, however, are yet to be felt. Having mortgaged their futures, the RAP Banks and associations must now cope with the burdens of prior costs spread to future years.

At year end 1986, six Federal Land Banks and one production credit association used RAP to avoid regulatory stock impairment. Originally slated to have expired at the end of 1988, RAP will now remain available through 1992 under the '87 legislation.

Farm Credit III—The '87 Act

By the end of the first quarter of 1987, aggregate surplus of System banks and associations had fallen to $1.3 billion from $6.1 billion at the end of 1984. Although in 1986, System banks had shared more than $1.0 billion under pre-existing loss sharing contracts, the Capital Corporation remained unable to collect its assessments made under the '85 Act. With non-accruing loans amounting to more than $7 billion Systemwide, some Banks would soon lack sufficient collateral (principally comprised of accruing loan assets) to back their participations in sales of Systemwide securities. Congress' response was Farm Credit III, signed into law by the President on January 7, 1988.

The legislation includes not only the mechanism for financial assistance but the means and the impetus for a greatly restructured and streamlined Farm Credit System. The legislation includes stock guarantees for present System borrowers and insurance protection for System investors. The law fosters greater competition in farm mortgage lending by providing for a secondary market for farm mortgage loans. The law provides for mandatory least-cost restructuring of distressed loans and expanded rights for Farm Credit System and Farmers Home Administration (FmHA) borrowers. Each of these new organizational and operational initiatives is sketched in the following sections.

Financial Assistance

Major funding for financial assistance will be provided from the sale of up to $4 billion in 15-year uncollateralized, but government-guaranteed, bonds to be issued prior to September 30, 1992 by a new Farm Credit System Financial Assistance Corporation (also referred to as the Assistance Corporation). Interest on the bonds will be paid by the government for the first 5 years of each issue, by the government and the System for the second 5 years, and by the System for the last 5 years. In addition to retiring principal on the bonds, the System must repay the

government for its interest outlays, though no repayment schedule is specified in the law.

The Kansas City-based Capital Corporation has been replaced by the Farm Credit System Assistance Board as the body responsible for administration of financial assistance. The Assistance Board is comprised of the Secretaries of Agriculture and Treasury (or their designees) and a farmer appointed by the President. System institutions whose stock is worth less than par may apply to the Assistance Board for "certification" to issue preferred stock and to receive financial assistance. Once the value of stock (as determined under Generally Accepted Accounting Principles) has fallen to less than 75 percent of par, the institution must apply for "certification".

Having requested certification, the operations and continued existence of the institution are made subject to approval of the Assistance Board. The Assistance Board may direct the Assistance Corporation to provide assistance on terms set by the Board. If so, the Assistance Corporation would, in turn, use proceeds from the sale of 15-year bonds to purchase preferred stock in the ailing institution. Prior to granting any assistance, however, the Board will consider if other alternatives might prove less costly or result in better service to the area. These alternatives could include a request that the FCA authorize a merger with another System institution or a request for appointment of a receiver. Any such mergers would only occur upon approvals by the stockholders of the affected institutions. The Assistance Board is authorized, however, to provide financial assistance to facilitate such mergers.

Farm Credit III reversed Capital Corporation assessments authorized under the '85 Act as well as System loss-sharing from the third quarter of 1986. Nevertheless, the self-help policy of Farm Credit I was carried forward by requiring that each Bank and association purchase stock of the Assistance Corporation in an amount equal to its unallocated retained earnings in excess of 5 percent (13 percent in the case of associations) of assets as of December 31, 1986. The law permits the aggregate contribution from each bank and its stockholder associations to be apportioned between the bank and associations as they all may agree.

Borrower Stock/Capitalization

Borrower equities outstanding in Farm Credit banks and associations on the date of enactment are guaranteed at par. Also guaranteed are borrower equities that were frozen in the course of association liquidations undertaken since 1982, as well as any required stock purchased not later than nine months following enactment or approval by bank or association stockholders of new capital plans, whichever is sooner.

New capital plans must require minimum stock purchases of $1,000 or 2 percent of the loan, whichever is less. This and any additional required stock, however, will be absolutely at risk.

System Structure

Until Farm Credit III, the Farm Credit Act provided only for mergers of "like" System institutions, such as one production credit association (PCA) with another PCA. Now, "unlike" institutions may be merged in whatever combinations may be approved by their stockholders and the FCA.

Sensitive to the need for swift streamlining of system structure, policymakers included in Farm Credit

III, a number of steps to set the process in motion:

o Stockholder prerogative was overridden by a statutory mandate that within six months following enactment, the Federal Land Bank (FLB) and Federal Intermediate Credit Bank (FICB) in each district must be merged into a district "Farm Credit Bank". The Assistance Board will provide assistance to assure that the stock of each of the resulting 12 banks is worth no less than 75 percent of par;

o Within six months following merger of their FICB and FLB, stockholders of PCAs and FLBs with substantially identical territories must vote on proposals to merge their associations;

o Within 18 months of enactment, stockholders of the new Farm Credit Banks must vote on a proposal to reduce the number of Farm Credit districts from 12 to no fewer than six;

o Stockholders of each Bank for Cooperatives (BC) will vote whether to merge into a single nationwide BC. If as many as eight districts approve the merger (by a majority by number and by loan volume of their stockholders), then the resulting "National BC" and those BCs whose stockholders did not approve the merger may compete nationwide.

Investor Protection

A Farm Credit System Insurance Corporation was established upon enactment of Farm Credit III. Following expiration of Assistance Board authorities on December 31, 1992, System obligations will become insured by the new FDIC-type fund on January 6, 1993. As of January 6, 1989, each System institution will become "insured" and will begin paying premiums to the Insurance Corporation in January 1990 based on its accruing loan volume during calendar year 1989. Initially, premiums will be at the rate of .0015 percent of accruing and .0025 percent of nonaccruing loans of the institutions. Once the fund reaches 2 percent of aggregate outstanding insured System obligations (or such other amount as the Insurance Corporation deems actuarially sound), the premium rates may be reduced by the Insurance Corporation.

Joint and several liability of System banks is retained under Farm Credit III, but may not be triggered until the insurance fund is exhausted.

The Insurance Corporation will operate under the direction of a Board of Directors consisting of the three members of the FCA board, provided, the Chairman of the FCA Board may not serve concurrently as Chairman of the Insurance Corporation Board.

Secondary Market

Farm Credit III establishes the Federal Agricultural Mortgage Corporation, "Farmer Mac", through which agricultural real estate loans originated by commercial banks, insurance companies, farm credit institutions and other eligible lenders may be pooled, securitized, and sold to the investing public with guarantees from Farmer Mac. Farmer Mac guarantees will be backed by a $1.5 billion U.S. Treasury line of credit.

Farmer Mac will develop uniform underwriting, security appraisal and repayment standards for qualified loans; determine eligibility of mortgage pooling "facilities"; and provide guarantees for pools of mortgages assembled by the approved facilities. The facilities will arrange with originating lenders to deliver mortgages to the facility on a non-recourse basis for pooling and issuance of a Farmer Mac-guaranteed security. Originators will continue to service the loan.

Each pooling facility must establish a reserve or retain a subordinated participation equal to 10 percent of the pool. The cost of maintaining that reserve or participation may be shared between the originator and the pooling facility as they may agree. Reserves (other than retained subordinated interests) must be invested in government or government agency securities. The reserve must be exhausted before the Farmer Mac guarantee would be activated.

In addition to fees which Farmer Mac may charge to cover its administrative costs, fees may be assessed by Farmer Mac to each pooling facility for the purpose of funding it guarantees. "Guarantee fees" will amount to a percentage of each total loan pool based on risk factors not to exceed 1/2 of 1 percent of the principal balance in the pool. Such fees would be imposed initially at issuance of the guarantee and annually thereafter. The Government Accounting Office is to annually review Farmer Mac's fees and report to Congress on their actuarial soundness.

Although technically deemed to be part of the Farm Credit System, Farmer Mac is not obligated on System-wide borrowings, nor are System banks obligated in any way on obligations of Farmer Mac.

Farmer Mac will come into existence under direction of an interim nine-member board designated by the President. After having accomplished the sale of $20 million in stock of Farmer Mac, the interim board will arrange for stockholder election of a permanent 15-member board of directors: five members elected by non-farm credit system stockholders, five by farm credit system institutions and five appointed by the President.

The Farmer Mac Board will set standards for qualified loans and pools of qualified loans. Among the minimum standards established in the statute are the following:

- o Each pool must have at least 50 loans spread among various agricultural commodities and over a wide geographic area;
- o Each loan must have a loan-to-value ratio of 80 percent or less;
- o No loan can comprise more than 3.5 percent of its pool;
- o Loans included in each pool must be for no more than $2.5 million (adjusted for inflation) or secured by no more than 1,000 acres.

Farmer Mac loan standards may not discriminate against small originators or small agricultural mortgage loans that are of at least $50,000. Included among eligible "agricultural real estate" loans are mortgage loans on principal residences, excluding those in communities of more than 2,500 or with a purchase price of more than $100,000.

Farmer Mac will likely be ready to issue its first guarantees early in 1989. Growth in commercial use of Farmer Mac is limited, however, to 2 percent of all outstanding agricultural real estate debt for the first year of operation, 4 percent in the second year and 8 percent in the third year. No such limits apply after the third year of operation. Use of Farmer Mac by Farm Credit System institutions does not come under these limits.

Borrower Rights

At the heart of the borrower rights title is the mandate that System institutions and other financing institutions discounting with the FICBs restructure distressed loans when the restructuring plan is less costly to the lender than foreclosure. Upon determination the loan is distressed, and no less than 45 days in advance of foreclosure, borrowers must be notified of their

right to apply for restructuring. In addition to requiring notices of opportunities to restructure, the law clarifies borrowers' rights of review where restructuring is denied.

The legislation clarifies and expands a number of other rights of System borrowers. Among them are:

o The right to obtain copies of appraisal reports;

o The right to obtain (at borrower expense) an additional appraisal to be carried out by an appraiser chosen from a Farm Credit-approved panel of three accredited independent appraisers; and

o Where differential interest rates apply, the right to obtain a review of the applicable rate, to obtain a written explanation of basis for the rate charged and a written explanation of steps the borrower may take to improve his credit status to qualify for a lower rate.

o Borrowers who lose their farms to Farm Credit will have a new right of first refusal to repurchase or to lease the property.

Loans originated in the Farm Credit System but sold into the secondary market will not, however, be subject to many borrower rights provisions of the Act. Applicants must be given notice of the terms available if their loan is to be funded through the secondary market and if it is conventionally funded through the System and that in the former instance, many borrower rights do not apply. Thereafter borrower will have three days in which to reconsider a choice to have their loan funded through the secondary market.

FmHA Provisions

Farm Credit III includes a number of provisions applicable to the Farmers Home Administration and FmHA borrowers. Among those provisions are borrower rights provisions which, for the first time, specifically authorize and direct implementation of least-cost restructuring of troubled FmHA farm loans, establish a 180-day exclusive right to repurchase or lease back property lost to FmHA, provide a similar right to obtain copies of appraisals, and expand to 10 acres the amount of property adjoining the homestead which may be rented by the borrower after foreclosure.

Also included is a new 3-year "demonstration project" under which FmHA will facilitate new or returning farmers' purchase of farmland in inventory with the Farm Credit System institutions certified to receive assistance under the '87 Act. Under the program, eligible farmers may qualify for interest rate reductions of up to 4 percent on guaranteed loans from Farm Credit System and other approved lenders for the term of the loan or 5 years whichever is less.

State Mediation Programs

The legislation provides matching funds for approved state mediation programs up to a maximum Federal outlay of $500,000 per state per year and mandates good faith participation in those programs by FmHA and Farm Credit System lenders. The law prohibits contractual waivers of mediation rights of FmHA and System borrowers.

Selected Implications

Deemed a $4 billion "bailout" by the media, Farm Credit III is more accurately a "third chance" for the Farm Credit System. To the extent that financial assistance is received by System institutions, it will come in the form of money loaned interest-free for 5 years and interest-subsidized for another five years. Not to be minimized, however, the following are six implications that can be drawn from Farm Credit III:

1) After two generations of migration away from its governmental roots, the Farm Credit System is moved closer to government as a result of Farm Credit III. Having received the Federal government's commitment for financial assistance, it may be a mere quid pro quo that the System is now charged with borrower rights requirements that parallel those of FmHA. In the case of the latter, the related costs are clearly borne by the government. Likewise, it may be argued, those costs are borne by the government where the System institution is receiving financial assistance. Yet, neither the borrower rights nor loan restructuring requirements of Farm Credit III are limited to institutions receiving financial assistance, nor do they lapse once assistance is repaid.

With this shift in the direction of the System's evolution, and particularly with the withdrawal of FmHA from direct farm lending, the System will be increasingly vulnerable to added assignments of governmental and social responsibilities. In this environment, there is considerable risk that System institutions may prove to be all too "available" as a tool to be politically coaxed or directed to deliver credit on other than a sound business basis. Moreover, because the added costs of borrower rights and restructuring requirements will continue beyond the period of financial assistance, they will inevitably be paid by System borrowers. Will credit-worthy borrowers, then, pay the added costs or will the System have replaced FmHA as agriculture's direct lender of last resort?

2) The primary benefits of statutory restructuring requirements will be more expeditious loan restructuring with greater consistency among the districts. The factors to now be universally applied in considering an application for loan restructuring closely parallel those considered under the least-cost restructuring policies in place across the System since the latter half of 1986. With increased oversight from district and national special asset councils (where institutions are certified for assistance), from new FCA reporting requirements, and from inclusion of the least-cost restructuring requirement in the statute, more consistent, more deliberate and better documented loan restructuring is expected to result. In addition, because these factors are now in the public domain, both borrower and the lender should be better equipped to focus their dialogue on these issues more quickly and to dispose of the matter more expeditiously.

3) The secondary market will make competition but it is an unlikely source of low-cost funding for the short-term. In terms of impact on the overall fabric of the agricultural finance industry, Farmer Mac holds considerable potential. Apart from the obvious potential of enabling country banks, savings and loans, credit unions, cooperatives and machinery dealers to become long-term real estate lenders, Farmer Mac will greatly facilitate the availability of long-term fixed rate financing of farm real estate. In the long run, competition in the farm real estate lending market is sure to increase. Farm borrowers will have a significantly greater number of sources of long term real estate financing. For the near term, however, the added competition will not likely prompt lower interests rates on long term farm mortgage loans.

A number of factors will place upward pressure on the pricing of Farmer-Mac guaranteed securities,

particularly during its start-up phase:

o Farmer Mac-guaranteed securities will be traded as high-grade corporate obligations. They will not be traded as "governments" or, as in the case of Farm Credit System Systemwide obligations, "agency securities";

o Farmer Mac guaranteed securities will be new; investors will demand a premium in this introductory period. "Farmer Macs" will be competing with asset-backed securities that are already established in the market;

o At the outset, the secondary market for these securities will be small, thus detracting from their attractiveness as investments.

In addition to pricing issues, the costs of the conservatively capitalized Farmer Mac will place additional upward pressure on the price of Farmer Mac funding to the originators:

o Though exempt from registration at the state levels, the cost of Federal securities registration requirements;

o The Farmer Mac guarantee fee and administrative fees;

o The cost of Farmer Mac investment requirement;

o The costs of maintaining the 10 percent reserve to be established or retained from each pool;

4) The price of long term credit from the Farm Credit Banks is unlikely to drop significantly in this period. Many System banks will carry the burdens of high-cost term securities yet outstanding for the short run. While System institutions work to bring down costs of deliver, they remain relatively high in most districts. Required investment in the Assistance Corporation has drawn down capital levels of banks and production credit associations. New insurance premium costs are on the near horizon. A number of banks face recognition of RAP-deferred costs from prior years. Amid these circumstances and with the need to build capital to meet new minimum capital requirements and to eventually repay government assistance, System institutions will be greatly challenged to provide credit at competitive rates in the near term.

5) The continuing substantial business challenges will prompt organizational streamlining to occur at a generally rapid pace. Organizational streamlining through consolidations will occur on varying timetables and along varying patterns among the districts, but at a generally rapid pace, as banks and associations must respond to financial and competitive challenges. Apart from the business consequences of such restructuring, elimination of district farm credit boards and the concurrent segregation of Banks for Cooperatives from the producer-financing side of the System will work a radical reshuffling of institutional power within the System. The resulting System-wide structure will likely include a general lessening of middle-layers, greater consolidation of funding and support services, and more streamlined mechanisms for loan-making and servicing along with greater direct accountability at local levels.

6) Federal policymakers have demonstrated their commitment to retaining a government-sponsored mechanism wholely dedicated to the delivery of capital to U.S. agriculture. By its repeated and timely actions to spare the Farm Credit System from financial emergencies, Washington policy-makers have demonstrated their unwillingness to allow a dismantling of a nationwide network for the delivery of capital targeted to U.S. agriculture. Indeed, it may be observed that through the addition of

Farmer Mac, they have added a backstop behind the Farm Credit System. Implicit in that is a continuing recognition of the importance of assuring a dependable supply of adequate capital for the production and processing of our nation's food and fiber.

COMMODITY PROGRAM UPDATE

BY KATHRYN L. LIPTON AND RICHARD L. SHELTON*

Commodity	1985	1986	1987	1988
Wheat				
Target price ($ per bu.)	4.38	4.38	4.38	4.23
Loan level ($ per bu.)	3.30	2.40	2.28	2.21
Reserve loan level ($ per bu.)	1/ 3.30	1/ 2.40	2.28	2.21
Reserve release level ($ per bu.)	4.45	4.45	4.38	4.23
Acreage reduction (percent)	20	22.5	27.5	27.5
Paid land diversion (percent)	10	3/ 2.5/5-10	--	--
Payment-in-kind (percent)	--	--	--	--
Nat'l base acreage (mil. acres)	93.9	92.6	89.6	85.3
Corn				
Target price ($ per bu.)	3.03	3.03	3.03	2.93
Loan level ($ per bu.)	2.55	1.92	1.82	1.77
Reserve loan level ($ per bu.)	1/ 2.55	1/ 1.92	1.82	1.77
Reserve release level ($ per bu.)	3.25	3.25	3.03	2.93
Acreage reduction (percent)	10	17.5	20	20
Paid land diversion (percent)	--	4/ 2.5	15	10
Nat'l base acreage (mil. acres)	83.3	81.9	83.3	83.4
Grain Sorghum				
Target price ($ per bu.)	2.88	2.88	2.88	2.78
Loan level ($ per bu.)	2.42	1.82	1.74	1.68
Reserve loan level ($ per bu.)	2.42	1.82	1.74	1.68
Reserve release level ($ per bu.)	3.10	3.10	2.88	2.78
Acreage reduction (percent)	10	17.5	20	20
Paid land diversion (percent)	--	4/ 2.5	15	10
Nat'l base acreage (mil. acres)	19.9	18.8	18.1	17.0
Barley				
Target price ($ per bu.)	2.60	2.60	2.60	2.51
Loan level ($ per bu.)	2.08	1.56	1.49	1.44
Reserve loan level ($ per bu.)	2.08	1.56	1.49	1.44
Reserve release level ($ per bu.)	2.65	2.65	2.60	2.51
Acreage reduction (percent)	10	17.5	20	20
Paid land diversion (percent)	--	4/ 2.5	15	10
Nat'l base acreage (mil. acres)	13.2	12.4	12.9	12.6
Oats				
Target price ($ per bu.)	1.60	1.60	1.60	1.55
Loan level ($ per bu.)	1.31	0.99	0.94	0.90
Reserve loan level ($ per bu.)	1.31	0.99	0.94	0.90
Reserve release level ($ per bu.)	1.65	1.65	1.60	1.55
Acreage reduction (percent)	10	17.5	20	5
Paid land diversion (percent)	--	4/ 2.5	15	--
Nat'l base acreage (mil. acres)	13.2	12.4	12.9	8.0

*U.S. Agricultural Policy Branch, ATAD, ERS. For more information, call (202) 786-1696.

	1985	1986	1987	1988
Rye				
Loan level ($ per bu.)	2.17	1.63	1.55	1.50
Soybeans				
Loan level ($ per bu.)	5.02	4.77	4.77	4.77
Upland Cotton				
Target price (cents per lb.)	81.00	81.00	79.4	75.90
Loan level (cents per lb.) 3/	57.30	1/ 55.00	1/ 52.25	51.80
Acreage reduction (percent)	20	25	25	12.5
Paid land diversion (percent)	10	--	--	--
Nat'l base acreage (mil. acres)	15.8	15.6	15.0	14.6
Extra Long Staple (ELS) Cotton				
Target price (cents per lb.) 3/	103.14	102.48	97.7	95.7
Loan level (cents per lb.) 3/	85.95	84.50	81.4	80.9
Acreage reduction (percent)	10	10	15.0	10
Nat'l base acreage (thous. acres)	66.0	77.7	85.9	104.9
Rice				
Target price ($ per cwt)	11.90	11.90	11.66	11.15
Loan level ($ per cwt)	1/ 8.00	1/ 7.20	1/ 6.84	6.63
Acreage reduction (percent)	20	35	35	25
Paid land diversion (percent)	15	--	--	--
Nat'l base acreage (mil. acres)	4.2	4.2	4.2	4.2
Flue-cured Tobacco				
Loan level (cents per lb.)	2/ 169.9	143.8	143.5	144.2
Effective marketing quota (mil. lbs.)	763.8	699	745	805
Burley Tobacco				
Loan level (cents per lb.)	2/ 178.8	148.8	148.8	150.0
Effective marketing quota (mil. lbs.)	541.7	463	520	553
Peanuts				
Loan level, quota ($ per ton) 3/	559	607.47	607.47	615.27
Loan level, non-quota ($ per ton)	148	149.75	149.75	149.75
Marketing poundage quota (1,000 tons)	1,100	1,355.5	1,355.5	1402.2
Wool				
Support level (cents per lb.) 3/	165	178	181	N.R.
Mohair				
Support level (cents per lb.) 3/	443	493	495	N.R.

	1985	1986	1987	1988
Sugar				
Loan level for raw cane (cents per lb.)	18.00	17.23	18.00	18.00
Loan level for refined beet (cents per lb.)	21.06	20.18	21.16	21.16
Honey				
Loan level (cents per lb.)	2/ 65.3	64.0	61.0	59.1

- - = Not applicable.
N.R. = Not released.
1/ Minimum allowed by law.
2/ Determined by statutory formula.
3/ The 2.5 percent is mandatory for program participation. Winter wheat producers have two options for aditional paid diversion -- 5 percent or 10 percent. Payments are made in the form of commodity certificates.
4/ Payments are made in the form of commodity certificates.

AGRICULTURAL AND FOOD POLICY UPDATE: ADMINISTRATIVE DECISIONS

by Kathryn L. Lipton

GRAINS AND COTTON

1989 Wheat Program Provisions-- USDA has announced a required 10 percent acreage reduction for the 1989 wheat program. Other provisions include:

- o a price support loan and purchase rate of $2.06 per bushel, a 20 percent reduction from the basic loan and purchase rate of $2.57. The downward adjustment was necessary to maintain U.S. wheat competitiveness in domestic and international markets;
- o the established target price is $4.10 per bushel, the statutory minimum, and down three percent from the 1988 target price;
- o a paid land diversion will not be implemented;
- o producers will be required to maintain in acreage conservation reserve an area equal to 11.11 percent of program payment acreage.

1988 Rice Program Provisions-- The national average level of price support for the 1988 rice crop was set at $6.60 per hundredweight (cwt). The target price is $11.15 per cwt. Other provisions include:

- o the differential between whole kernel milled rice price support rates is established at $1 per cwt, unchanged from the 1987 crop;
- o whole kernel milled rice support rates are $10.89 per cwt for long grain and $9.89 for medium and short grain rice. The broken kernel rate for all rice classes is $5.45 per cwt;
- o producers having 1988 crop rice pledged as collateral for a price support loan will not be permitted to purchase marketing certificates when repaying loans at the marketing loan repayment rate;
- o payments based on the difference between the 1988 loan rate and the loan repayment rate (loan deficiency payments) will not be offered to producers who agree to forego obtaining a loan or purchase agreement in return for these payments;
- o the discretionary inventory reduction program will not be implemented;
- o advance deficiency payments may be requested at signup and will be 40 percent of the estimated deficiency payment rate of $1.65 per cwt. One half of this amount will be paid in cash at signup and the balance will be paid in generic commodity certificates;
- o grazing of acreage conservation reserve land and conservation use acreage will be permitted except during any five consecutive months between April 1 and October 31. Haying will not be allowed except under emergency conditions unless it is determined that, based upon information submitted by a state ASCS committee, haying will not have an adverse economic effect in the state.
- o 1988 program payment yields will be based on the average program payment yields established for a farm during the 1981-85 crop years, excluding the highest and lowest yields. However, if this results in a yield below 90 percent of the 1985

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program payment yield, producers will be compensated to ensure that they receive the same return as if the yield had not been reduced by more than 10 percent.

Rice Producers Receive Deficiency Payments-- Eligible rice farmers received approximately $565 million in deficiency payments for the 1987 crop. About $170 million of the $565 million had been paid to rice producers who requested advance payments. The balance was paid in generic certificates. The deficiency payment rate was $4.82 per hundredweight.

Barley Survey Reinstated-- The National Agricultural Statistics Service has reinstated several barley production and stocks surveys. The surveys, which were discontinued in 1986, are being restored because funding is available during fiscal year 1988.

Payments to 1987 Corn and Sorghum Producers-- USDA made about $1.45 billion in deficiency payments in March to eligible producers of 1987 crop corn and sorghum. The payments were made because national weighted average market prices received by producers during the first five months of the marketing year were below established target price levels. Eligible corn farmers received about $1.3 billion and sorghum producers approximately $145 million. Advance payments of about $2.6 billion had been made to corn producers and about $225 million to sorghum producers.

Final Compliance for 1986 Acreage Reduction Programs Announced-- USDA released final figures indicating that more than 82 percent of the base acreage for wheat, feed grains, upland and extra-long staple cotton, and rice were in compliance with 1986 production adjustment program requirements. The acreage taken out of production and devoted to conservation uses totaled 44.6 million acres. Farmers complying with the 1986 acreage reduction programs agreed to reduce their plantings of wheat and upland cotton by 25 percent, 20 percent for feed grains, 10 percent for ELS cotton, and 35 percent for rice. Winter wheat producers were offered an optional 5 percent or 10 percent paid land diversion.

USDA Announces Preliminary Compliance for 1987 Acreage Reduction Programs-- Approximately 87 percent of the base acreage for wheat, feed grains, upland and extra-long staple (ELS) cotton and rice were in compliance with 1987 production adjustment program requirements. A total of 59.9 million acres were taken out of production and devoted to conservation uses. Producers complying with the acreage reduction programs agreed to reduce their plantings of wheat by 27.5 percent, 20 percent for feed grains, 25 percent for upland cotton, 15 percent for ELS cotton, and 35 percent for rice. Feed grain producers were offered an optional 15 percent paid land diversion.

Expiration Dates of Cotton Commodity Certificates Extended-- The expiration dates of cotton commodity certificates issued under the 1986 upland cotton program have been extended to July 31, 1989, or nine months from the last day of the month in which the certificate was issued. These certificates would have expired February 19. The expiration dates have been extended because of a shortage of cotton in the Commodity Credit Corporation inventory.

OILSEEDS AND TOBACCO

Support Levels Set for 1988 Crop Peanuts-- The national average

support level for 1988 crop quota peanuts will be $615.27 per short ton, up $7.80 from the 1987 level. The increase was based on data which indicated the cost of producing 1987 crop quota peanuts was greater than in 1986. The support level for 1988 crop additional peanuts will be $149.75 per short ton, unchanged from 1987. The price support level for additional peanuts must be established at a level to ensure no loss to the CCC from sales or disposal of the peanuts. In determining this level, USDA must consider certain factors such as the demand for peanut oil and meal, the expected prices for other vegetable oils and protein meals, and the demand for peanuts in foreign markets. The 1988 crop additional peanuts owned or controlled by the CCC will be sold for export edible use at no less than $400 per ton, the same minimum price as for the 1987 crop.

Flue-cured Tobacco Assessment Rates Announced-- USDA announced that producers and purchasers will each be assessed 2.26 cents per pound for the 1988 crop of flue-cured tobacco. The assessment covers a no-net cost assessment of 2 cents per pound and a budget deficit assessment of .26 cents per pound. The budget deficit assessment is mandated by the Omnibus Budget Reconciliation Act of 1987. These amendments provide for a 1.4-percent reduction in the price support level or, alternatively, for the imposition of an assessment on producers and purchasers to achieve an equal reduction in outlays by the CCC. The 1988 price support level will remain at 1.442 per pound.

Burley Tobacco Price Support Level Set for 1988 Crop-- The 1988 crop burley tobacco support level was set at $1.50 per pound and a budget deficit assessment of .4 cents per pound was established. The assessment is to be paid by producers and purchasers of the 1988 crop of burley tobacco. The 1988 price support level is 1.2 cents above the previous year.

1988 Burley Tobacco Quota Announced-- The 1988 burley tobacco national marketing quota is 473.4 million pounds. Each producer's basic quota is about two percent greater for the 1988 crop than for the 1987 crop. Farmers who produce less than their quota of tobacco in one year are allowed to overmarket the amount of the shortfall the following year. Since last season's undermarketings are estimated to exceed over-marketings by 80 million pounds, the 1988 effective quota which could be marketed would be about 553 million pounds, or 28 million pounds above the 1987 effective quota.

Acreage Allotments Announced for Five Kinds of Tobacco-- In March, USDA announced national factors and acreage allotments for five kinds of tobacco for the 1988 marketing year. Acreage for Virginia fire-cured tobacco will total 5,588 in 1988, compared with 6,546 in 1987. The allotment for Kentucky-Tennessee fire-cured will be 11,890 acres, slightly above the 11,874 acres in 1987. Other allotments are:

- o Dark air-cured: 4,006 acres compared to 4,035 acres in 1987.
- o Virginia sun-cured: 595 acres, down from 920 last year.
- o Cigar filler and binder: 8,296 acres versus 8,526 in 1987.

SUGAR AND SWEETENERS

Honey Program Provisions Announced for 1988-- The 1988 honey price support program will be conducted solely through price-support loans. Purchase agreements will not be offered. The average price-support loan rate will be 59.10 cents per pound. Extracted honey loan rates will range from 62.02 cents to 48.06

cents per pound, depending on color and class:

Color or class	Cents/pound
White	62.02
Extra-light amber	58.22
Light amber	53.66
Amber and nontable honey	48.06

Loans will be offered on 1988 crop honey in eligible containers on or off farms. Producers with only price-support loans will be permitted to repay their loans at rates less than the price-support loan rates. These rates will be established at levels that will minimize loan forfeitures, reduce honey stocks and storage costs, and maintain the competitiveness of domestic honey in U.S. and export markets.

LIVESTOCK AND MEAT

Requirements for New Poultry Inspection System Issued-- USDA has issued the final facility and equipment requirements for the poultry Streamlined Inspection System (SIS). The SIS is a relatively new, cost-effective approach to poultry inspection that places more responsibility on industry. The final rule lists dimensions for facilities at inspection and reinspection stations that are necessary parts of this new system. The rule has other requirements which include maintaining equipment to ensure proper lighting, handwashing facilities, adjustable platforms, and carcass selection devices at inspection stations. The SIS system is used in approximately 145 poultry plants that slaughter cornish game hens and broilers. While the costs of complying with the new requirements are expected to be minor, USDA believes that the savings in overtime inspection costs and increased productivity will be substantial.

Final Guidelines on Collecting Beef Assessments Issued-- USDA has issued a final rule governing collection of assessments under the Beef Promotion and Research Order. A $1 per head assessment on cattle marketed in the United States has been collected since October 1, 1986. An equivalent assessment is made on imported beef and cattle. The funds finance a program operated by the Cattlemen's Beef Promotion and Research Board to strengthen the position of beef in the marketplace.

Changes in Program for Sulfamethazine Testing of Hogs-- USDA has begun using a rapid, in-plant screening test, known as the Sulfa-On-Site (SOS) test, in its intensified program for testing for violative levels of sulfamethazine residues in hogs brought to slaughter plants. The SOS test enables inspectors to test animals for sulfamethazine residues in a matter of a few hours. About 100 plants are expected to use the test, accounting for 97 percent of all swine slaughtered nationwide.

Sales Exemptions for Meat and Poultry Changed-- USDA increased the value of meat retailers can sell to hotels, restaurants, and similar institutions without federal inspection from $30,500 to $31,600. The ceiling for poultry was decreased from $31,000 to $28,100. Retail meat and poultry sellers are exempt from federal inspection if total sales do not exceed a limit set by USDA each year and if sales to institutions do not exceed 25 percent of total annual sales.

USDA Expands Repackaging and Relabeling Services-- Poultry and poultry products inspected at federal plants can be repackaged and relabeled at certain warehouses and distribution centers under the

supervision of USDA inspection personnel. Repacking and relabeling operations allow bulk shipments of federally inspected products to be divided into consumer packages and to have brand name labels placed on the products. Previously, poultry products would only be repacked and relabeled at federally inspected plants. All cutting and processing of poultry is still limited to federally inspected plants. Processors must pay USDA to have an inspector present during repackaging and relabeling operations. This optional service has been available previously to the meat industry, but there was no regulation allowing it for poultry products.

Alternate Substances Allowed in Approved Meat Binder-- USDA allows meat processors to use glucono delta-lactone as an alternate acidic substance in a dry binder for restructured meat products. The substance also can be used to adjust the acid level in other meat and poultry products. Analytical data shows that glucono delta-lactone does not affect the safety or wholesomeness of meat or poultry products when used in prescribed amounts and for approved purposes.

Lower Fat Allowed in Some Cooked Sausages-- USDA now allows meat processors to substitute water for fat to make lower fat hot dogs, bologna, and other cooked sausages, providing there is no loss of nutritional value. The change in the regulations reflects USDA's desire to facilitate the marketing of lower fat products. Current inspection regulations for cooked sausages restrict fat to 30 percent and added water to 10 percent. Under the new rule, the combination of fat and added water cannot exceed 40 percent of the product. The maximum fat content will continue to be limited to 30 percent. However, the water restriction will be removed so that processors can substitute some of the water for fat to produce a lower fat product. The protein content, which is indirectly controlled by the fat and added water limits, will remain unchanged.

Minor Changes in Cured Pork Products Requirements Made-- USDA made three minor revisions in its standards and labeling requirements for cured pork products. The first will eliminate the 2 percent limit on the amount of sweetener, such as corn syrup, that is added to chopped ham. This requirement is unnecessary because of regulations for cured pork products already control all added substances in these products. The second revision will give processors the option of reducing the size of qualifying statements, such as "with natural juices." As an alternative to using the three-eighth inch lettering currently required for these statements, processors can reduce the lettering to one-third the size of the product name. Finally, the qualifying statement on certain cured pork products, such as those sold in delicatessen cases, will no longer have to repeated the full length of the label.

DAIRY

Dairy Cattle EEP Initiatives Withdrawn-- USDA has announced the withdrawal of eight initiatives for dairy cattle under the Export Enhancement Program (EEP). The EEP for dairy cattle was initiated to encourage exports of dairy cattle made available as a result of the Dairy Termination Program (DTP). The withdrawal of the initiatives follows cessation of the DTP.

PEST AND DISEASE CONTROL

Varroa Mite Quarantine Lifted-- USDA removed the federal quarantine

imposed in April on 13 states infested with the Varroa mite, a parasite of honeybees. The states are Florida, Illinois, Maine, Michigan, Mississippi, Nebraska, New York, Ohio, Pennsylvania, South Carolina, South Dakota, Washington, and Wisconsin. USDA concluded that the regulatory program established under the quarantine is not the appropriate mechanism to contain the interstate spread of the mites.

CITE Test Approved for Brucellosis-- USDA has approved the concentration immunoassay technology (CITE) test as an official supplement to standard card tests for brucellosis in cattle and bison. The CITE test permits diagnostic testing in the stockyard, providing faster results than if the blood had to be sent to a laboratory. The CITE test will also be used as a supplement to the standard card test. The latter is so sensitive that cattle and bison that have residual antibodies from being vaccinated against brucellosis may erroneously test positive for the disease. The supplemental CITE test will help avoid unnecessary destruction of valuable animals. Testing negative to an official brucellosis test is a condition for interstate movements of certain cattle and bison. Official tests also are used to determine eligibility for indemnity payments for animals destroyed because of brucellosis.

Field Trials of Tomato Herbicide Approved-- Field tests began this spring on tomato plants genetically engineered to tolerate sulfonylurea herbicides. The "low-risk" herbicide could provide commercial tomato producers a valuable new method of controlling weeds without damaging their crops.

CONSERVATION AND NATURAL RESOURCES

More Rural Areas Benefit from Conservation Projects-- Thirty counties have been added to nine areas receiving USDA assistance under the Resource Conservation and Development (RC&D) Program. An estimated 3 million acres are included in the expansion, bringing the total number of acres involved in the nine areas to 40 million. The RC&D program is run by area residents who set program priorities. USDA provides technical and financial assistance to local RC&D councils which include members of the sponsoring organizations--county and local governments, soil and water conservation districts, water districts, and other nonprofit organizations.

USDA Announces Changes for CRP Bid Determinations-- USDA has changes the manner in which acceptable bid levels will be set for the entrance of land into the Conservation Reserve Program. The Rural Development, Agriculture, and Related Agencies Act for fiscal year 1988, provides that funds made available by that Act may not be used to enter into new contracts that are in excess of the prevailing local rental rates for an acre of comparable land. The maximum acceptable rental rates (MARR) will continue to be established on a pool-wide basis. However, Agricultural Stabilization and Conservation county committees will determine a MARR for their respective county, based on local conditions, which may not exceed the MARR established for the pool. For bids submitted which are equal to or lower than the county MARR, the local county ASC committee will determine whether the bid exceeds the prevailing local rental rate for an acre of comparable land. These determinations will take into account the nature of the land for which the bid is submitted.

Seventh CRP Signup Set-- The seventh signup for the Conservation Reserve Program (CRP) will be held July 18 through August 5. USDA received bids submitted on over 4.5 million acres during the previous signup in February. Cropland areas 66-99 feet wide, next to streams, lakes, estuaries, and other permanent bodies of water which are suitable for use as filter strips were eligible for CRP enrollment during the February signup. These strips normally do not meet CRP criteria. Over 500,000 acres of the February signup were offered to be planted to trees.

Haying and Grazing Provisions for Drought Areas Announced-- Haying and grazing will be allowed for any consecutive five-month period between April 1 and October 31 in counties found to be suffering from a natural disaster occurring in 1988 that has adversely affected pasture and forage crops. Determination of eligible counties will be made on a county-by-county basis. It must be determined that there will not be an adverse economic effect on hay producers in a county. Also, any hay or forage harvested may not be sold. A producers may allow other producers to hay and graze his own acreage and may charge a reasonable harvesting fee for the privilege but may not receive compensation for any value of the vegetative matter that is harvested or grazed. The producer may recover the cost of making the hay.

Other Emergency Provisions Enacted-- In addition to the haying and grazing provisions, USDA has taken several other actions in response to emergency conditions. Producers already enrolled in the 1988 acreage reduction programs for wheat and feed grains may receive payments in accordance with the 0/92 disaster provisions, even though the March 11 deadline for participation in 0/92 has passed. The Emergency Feed Program and the Emergency Feed Assistance Program are also available for eligible producers. The Emergency Feed Program provides that the Commodity Credit Corporation will share with livestock producers the cost of purchasing livestock feed, including hay. The cost share is up to 50 percent of the cost of feed, not to exceed five cents per pound grain equivalent. The Emergency Feed Assistance Program allows eligible producers to purchase CCC-owned grain at 75 percent of the county loan rate to feed their foundation livestock.

RURAL DEVELOPMENT

Economic Development Report Issued-- USDA issued its report on federal efforts to assist economic development in rural areas of the United States. The report outlines rural economic development programs at USDA and at the U.S. Departments of Commerce, Defense, Education, Health and Human Services, Housing and Urban Development, Interior, Labor, Transportation, the Small Business Administration, the Environmental Protection Agency, and the Veterans Administration. Information on the report can be obtained by calling USDA's Office of Small Community and Rural Development at (202) 447-4581.

FOOD SAFETY

Inspection Chief Names U.S. Codex Coordinator-- Lester M. Crawford, administrator of the U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS), has been named U.S. coordinator for Codex Alimentarius Commission activities. The commission, sponsored by the World Health Organization and the Food and Agriculture Organization, sets international food hygiene and other standards to protect public

health and promote free trade. Crawford will retain his post as FSIS administrator.

USDA and HHS Announce Pilot Food Safety Hotline-- USDA and the Department of Health and Human Services will operate a pilot program for a Food Safety Hotline in three states. The pilot program will have a toll-free number--1-800-426-3758--that residents in Florida, Illinois, and Massachusetts can call during June, July, and August, to ask professional home economists questions on any aspect of food safety. The results of the pilot program will determine whether the two departments set up a nationwide toll-free food safety hotline.

INTERNATIONAL

Agricultural Trade Mission Teams Appointed-- Seven private sector and government officials were appointed to meet with their counterparts in the Philippines and Hong Kong to discuss agricultural trade prospects and other mutual agricultural interests. An eight-member team trade mission team was appointed to meet with officials in Indonesia and Singapore.

The visits are part of a series of U.S. agricultural trade and development missions administered jointly by the U.S. Departments of Agriculture and State and the U.S. Agency for International Development. Congress authorized the program in December to encourage greater U.S.-private sector and foreign country participation in U.S. agricultural trade and development activities.

$30 Million Allocated for Targeted Export Assistance-- Fifteen projects will receive the $30 million balance of the unallocated Targeted Export Assistance (TEA) funds for fiscal 1988. The announcement completes the allocation of $110 million in TEA resources authorized for fiscal 1988 in the Food Security Act of 1985. The TEA program uses surplus stocks from the Commodity Credit Corporation to help U.S. producers finance promotional activities for U.S. agricultural products to counter or offset the adverse effects of unfair foreign trade practices. The additional allocations will provide promotional assistance for a range of U.S. agricultural commodities including seafood, meat, poultry, mink, pulses, rice, feed grains, wheat, horticultural products, soybeans, peanuts, and other high-value products.

Near East Countries Eligible for Table Eggs Under EEP-- Sales of up to an additional 5 million dozen U.S. table eggs will be sold to six Near Eastern countries--Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, and the Yemen Arab Republic--under USDA's Export Enhancement Program (EEP). Sales of table eggs will be made to buyers in these countries at competitive world prices. The export sales will be subsidized with commodities from the inventory of the Commodity Credit Corporation. The subsidy will enable U.S. exporters to compete at commercial prices in the Near Eastern market. The six countries have already purchased over 4.16 million dozen U.S. table eggs under a previously announced allocation of the EEP.

MISCELLANEOUS

Low-input Farming Research Program Launched-- USDA has targeted $3.9 million for a new program to develop improved alternative farming methods through research and education programs involving farmers, universities, and private organizations. The program, "Low-input Farming Systems Research and Education," is designed to enhance

the long-term sustainability, profitability, and competitiveness of U.S. agriculture while reducing pollution of water supplies and hazards to human health associated with excessive use of synthetic chemical pesticides and fertilizers. Low-input farming systems will feature combinations of such methods as using legume-crop rotations, applying animal manures and municipal sludge in place of some fertilizers, and substituting biological controls for some chemicals widely used to control weeds, diseases, insects, and other pests. The program will be operated by regional teams featuring involvement of State experiment stations, USDA agencies including the Cooperative State Research Service, Extension Service, and Agricultural Research Service, private research and education institutions, and farmers. Program activities will include development and testing of farming systems based on new and existing scientific knowledge, innovative educational methods, and direct involvement of farmers in evaluating the usefulness of the findings.

Actions Taken in Response to the Drought

by Susan L. Pollack*

The following actions have been taken to help farmers affected by the drought situation.

President Reagan established the Presidential Interagency Drought Policy Committee to devise emergency plans to cope with the drought. The President ordered representatives of eight Federal agencies to review drought conditions across the country and advise him on what the government should do to ease the plight of the farmers.

The Secretary of Agriculture established a toll-free telephone hotline (1-800-541-3375) to answer questions about federal government services available to citizens in drought-stricken areas. The hotline is serviced by USDA, in coordination with other agencies.

USDA and state agriculture officials are establishing a national hay information network, "HayNet," to state officials in locating available hay and identifying drought-stricken areas that need forage for cattle feeding. Many individual in-state hay hotlines are already in place. However, the national network will broaden these efforts to a national scale. Farmers who have a supply of hay or are in need of hay can contact their state officials for assistance.

The Secretary of Agriculture has been participating in Congressional Task Force on Drought meetings, to keep Congress abreast of present situation and coordinate policy for future action. The Secretary has also been advising the task force on actions he has authorized USDA to take to alleviate the hardship placed on farmers by the drought. Actions have included:

--Allowing haying and grazing of livestock on set-aside land, (the land farmers agreed not to plant on to be eligible for participation in farm programs) and haying, for use as livestock feed, on Conservation Reserve Program in eligible counties. To be considered eligible for emergency haying and grazing, a county must show it has experienced adverse affects on forage crops due to drought. About 1,500 counties in 30 states have become eligible.

The Secretary of Agriculture is permitting producers, in counties approved for emergency haying and grazing, to sell hay to anyone. Previously, producers were allowed only to receive harvesting expenses if hay was sold. This new action is expected to provide incentives to producers to increase hay supplies in drought-stricken areas.

The Secretary of Agriculture has allowed harvest of acreage conservation reserve, conservation use, and conservation reserve program lands in eligible counties for green chop (direct cutting, harvested wet) for immediate feeding to livestock or for silage. These lands are set-aside from production as part of the Federal farm programs and put into conserving use, or were set-aside because of the high levels of soil erosion on the land. This is in addition to permitted harvesting of hay.

The Secretary of Agriculture is permitting oats to be harvested for forage from acreage conservation reserve or conservation use acreage to be green-chopped or used for silage through July 8.

The Secretary of Agriculture has approved counties for the Emergency

The Secretary of Agriculture has approved counties for the Emergency Feed Assistance Program which already are approved for the Emergency Feed Program to help beef cattle producers feed their animals. Under the Emergency Feed Program, the Commodity Credit Corporation shares the cost of feed purchased by eligible producers. Under the Emergency Feed Assistance Program, producers are authorized to purchase CCC-owned grain at 75 percent of the county loan rate. Counties approved for one program are automatically approved for the other.

The Secretarys of Agriculture and Interior have approved emergency haying of certain Water Bank Program lands. Counties approved are those previously designated by USDA for emergency haying and grazing of ACR and CU acreage, and haying of CRP land. Haying will be allowed for 30-day period. Conditions surrrounding this action include: 10 percent of land nearest wetland will not be hayed; haying will begin on land farthest from wetland; participants haying on this land will have their next per-acre rental payment reduced by 25 percent for each acre hayed. Producers also must agree to other ASCS conditions.

Administrative Actions Authorized by the Farm Bill

Farmers who signed up for the 0/92 option for this years' crop, and have lost the crop they planted or were prevented from planting any crop due to the drought, even though it was not required for program participation, are still eligible to receive 92 percent of their deficiency payments. However, if commodity prices continue to rise, deficiency payments could become very small or be eliminated, and these farmers would be no better off than those who did not sign up for the program.

The Secretary of Agriculture can make guaranteed deficiency payments to wheat and feed grain producers (known as the upside authority). It would allow the Secretary to make a $1.41 per bushel deficiency payment to wheat growers and a 60-cent-per-bushel deficiency payment to corn growers (payments to other feed grains made in relation to corn). This payment would occur if deficiency payments were estimated to drop below $1.41 for wheat and 69 cents for corn.

The Secretary of Agriculture can use authority to increase Federal support prices for farm commodities. Such an action would be useful only to dairy producers who are facing a 50-cent cut in price supports. An increase in their support prices would help them offset the increase in the cost of feed grains due to the drought.

The Secretary of Agriculture can implement a disaster payment program if a producer is prevented from planting, produces a low yield, or the producer has suffered a substantial loss of production and the loss has created a economic emergency for the producer, if the condition is caused by drought, flood, or other natural disaster, and the Secretary determines that crop insurance is not available for these situations to the producers under the Federal Crop Insurance Act.

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AGRICULTURAL AND FOOD POLICY UPDATE: LEGISLATION

by Susan L. Pollack

Poultry Producers Financial Protection Act of 1987 (P.L. 100-173) was signed on November 23, 1987. The law amends the Packers and Stockyards Act of 1921, to provide financial protection to poultry growers and sellers, and to clarify Federal jurisdiction under the Act.

Rural Crisis Recovery Program Act of 1987 (P.L. 100-219) was signed December 29, 1987. The law provides special grants for educational, retraining, and counseling assistance programs for farmers, dislocated farmers, and rural families adversely affected by the farm and rural economic crisis.

Renewable Resources Extension Act Amendments of 1987 (P.L. 100-231) was signed January 5, 1988. The law extends the Renewable Resources Extension Act of 1978 until 2000 and provides funding for the next 12 years. It also requires a review and evaluation of the Renewable Resource Extension Program's goals and accomplishments.

Agricultural Credit Act of 1987 (P.L. 100-233) was signed January 6, 1988. The bill provides credit assistance to farmers, strengthens the Farm Credit System, and facilitates the establishment of secondary markets for agricultural loans.

National Fish and Wildlife Foundation Establishment Act, Amendments of 1987 (P.L. 100-240) was signed on January 11, 1988. The law clarifies the authorities of the National Fish and Wildlife Foundation Establishment Act with respect to management requisition, disposition of real property, and participation of foreign governments. It also reauthorizes the Foundation through fiscal year 1993.

Agricultural Act of 1949, Amendment (P.L. 100-277) was signed April 4, 1988. The law strengthens Public Law 480 and the Surplus Commodity Disposal Program to make them stronger market development tools. It improves the usage of donated food to enhance community, health, credit, agricultural and other development efforts of poor countries, and it speeds up the implementation of aid and trade mission legislation enacted as part of the 1987 continuing appropriations.

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